كليـــــــة الطب
والصيدلة - مراكش
FACULTÉ DE MÉDECINE
ET DE PHARMACIE - MARRAKECH
MARRAKECH
جامعة القاضي عياض
UNIVERSITÉ CADI AYYAD

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Management of bladder exstrophy

THESIS

PRESENTED AND PUBLICLY DEFENDED ON 12/02/2024

BY

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Born on March 24th, 1998 in The Sultanate of Oman

TO OBTAIN THE DEGREE OF DOCTOR OF MEDICINE

KEYWORDS

Bladder exstrophy – Surgical treatment
Short and long – Term complication

JURY

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Mr.	F. MAOULAININE Professor of Pediatrics	JUDGE


بسم الله الرحمن الرحيم
قَالُوا سُبْحَانَكَ لَا
عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا ط إِنَّكَ
أَنْتَ الْعَلِيمُ
الْحَكِيمُ
سورة البقرة- الآية 32
صدق الله العظيم

***A**s a member of the medical profession:*

***I** solemnly pledge to dedicate my life to the service of humanity;*

***T**he health and well-being of my patient will be my first consideration;*

***I** will respect the autonomy and dignity of my patient;*

***I** will maintain the utmost respect for human life;*

***I** will not permit considerations of age, disease or disability, creed, ethnic origin, gender, nationality, political affiliation, race, sexual orientation, social standing or any other factor to intervene between my duty and my patient;*

***I** will respect the secrets that are confided in me, even after the patient has died;*

***I** will practise my profession with conscience and dignity and in accordance with good medical practice;*

***I** will foster the honour and noble traditions of the medical profession;*

***I** will give to my teachers, colleagues, and students the respect and gratitude that is their due;*

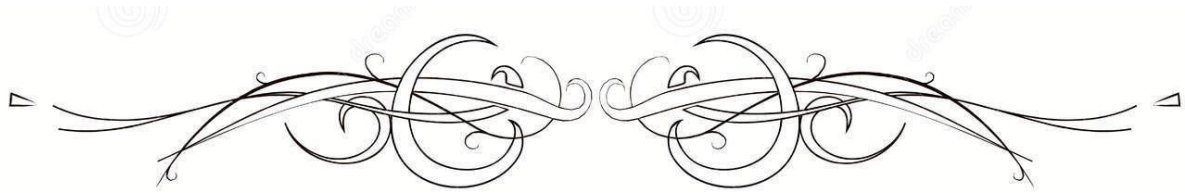
***I** will share my medical knowledge for the benefit of the patient and the advancement of healthcare;*

***I** will attend to my own health, well-being, and abilities in order to provide care of the highest standard;*

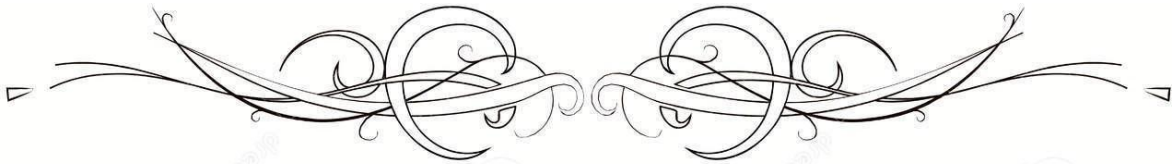
***I** will not use my medical knowledge to violate human rights and civil liberties, even under threat;*

***I** make these promises solemnly, freely, and upon my honour.*

Geneva Declaration, 1948



LIST OF PROFESSORS



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Secrétaire Général : Mr. Azzeddine EL HOUDAIGUI

Liste nominative du personnel enseignants chercheurs permanant

N°	Nom et Prénom	Cadre	Spécialité
01	BOUSKRAOUI Mohammed (Doyen)	P.E.S	Pédiatrie
02	CHOULLI Mohamed Khaled	P.E.S	Neuro pharmacologie
03	KHATOURI Ali	P.E.S	Cardiologie
04	NIAMANE Radouane	P.E.S	Rhumatologie
05	AIT BENALI Said	P.E.S	Neurochirurgie
06	KRATI Khadija	P.E.S	Gastro-entérologie
07	SOUMMANI Abderraouf	P.E.S	Gynécologie-obstétrique
08	RAJI Abdelaziz	P.E.S	Oto-rhino-laryngologie
09	KISSANI Najib	P.E.S	Neurologie
10	SARF Ismail	P.E.S	Urologie
11	MOUTAOUAKIL Abdeljalil	P.E.S	Ophtalmologie
12	AMAL Said	P.E.S	Dermatologie
13	ESSAADOUNI Lamiaa	P.E.S	Médecine interne
14	MANSOURI Nadia	P.E.S	Stomatologie et chirurgie maxillo faciale

15	MOUTAJ Redouane	P.E.S	Parasitologie
16	AMMAR Haddou	P.E.S	Oto-rhino-laryngologie
17	ZOUHAIR Said	P.E.S	Microbiologie
18	CHAKOUR Mohammed	P.E.S	Hématologie biologique
19	EL FEZZAZI Redouane	P.E.S	Chirurgie pédiatrique
20	YOUNOUS Said	P.E.S	Anesthésie-réanimation
21	BENELKHAIAT BENOMAR Ridouan	P.E.S	Chirurgie générale
22	ASMOUKI Hamid	P.E.S	Gynécologie-obstétrique
23	BOUMZEBRA Drissi	P.E.S	Chirurgie Cardio-vasculaire
24	CHELLAK Saliha	P.E.S	Biochimie-chimie
25	LOUZI Abdelouahed	P.E.S	Chirurgie-générale
26	AIT-SAB Imane	P.E.S	Pédiatrie
27	GHANNANE Houssine	P.E.S	Neurochirurgie
28	ABOULFALAH Abderrahim	P.E.S	Gynécologie-obstétrique
29	OULAD SAIAD Mohamed	P.E.S	Chirurgie pédiatrique
30	DAHAMI Zakaria	P.E.S	Urologie
31	EL HATTAOUI Mustapha	P.E.S	Cardiologie
32	ELFIKRI Abdelghani	P.E.S	Radiologie
33	KAMILI El Ouafi El Aouni	P.E.S	Chirurgie pédiatrique
34	MAOULAININE Fadl mrabih rabou	P.E.S	Pédiatrie (Néonatologie)
35	MATRANE Aboubakr	P.E.S	Médecine nucléaire
36	AIT AMEUR Mustapha	P.E.S	Hématologie biologique
37	AMINE Mohamed	P.E.S	Epidémiologie clinique
38	EL ADIB Ahmed Rhassane	P.E.S	Anesthésie-réanimation
39	ADMOU Brahim	P.E.S	Immunologie
40	CHERIF IDRISSI EL GANOUNI Najat	P.E.S	Radiologie
41	TASSI Noura	P.E.S	Maladies infectieuses
42	MANOUDI Fatiha	P.E.S	Psychiatrie
43	BOURROUS Monir	P.E.S	Pédiatrie
44	NEJMI Hicham	P.E.S	Anesthésie-réanimation
45	LAOUAD Inass	P.E.S	Néphrologie
46	EL HOUDZI Jamila	P.E.S	Pédiatrie
47	FOURAIJI Karima	P.E.S	Chirurgie pédiatrique
48	ARSALANE Lamiae	P.E.S	Microbiologie-virologie
49	BOUKHIRA Abderrahman	P.E.S	Biochimie-chimie
50	KHALLOUKI Mohammed	P.E.S	Anesthésie-réanimation
51	BSISS Mohammed Aziz	P.E.S	Biophysique

52	EL OMRANI Abdelhamid	P.E.S	Radiothérapie
53	SORAA Nabila	P.E.S	Microbiologie-virologie
54	KHOUCHANI Mouna	P.E.S	Radiothérapie
55	JALAL Hicham	P.E.S	Radiologie
56	OUALI IDRISSI Mariem	P.E.S	Radiologie
57	ZAHLANE Mouna	P.E.S	Médecine interne
58	BENJILALI Laila	P.E.S	Médecine interne
59	NARJIS Youssef	P.E.S	Chirurgie générale
60	RABBANI Khalid	P.E.S	Chirurgie générale
61	HAJJI Ibtissam	P.E.S	Ophtalmologie
62	EL ANSARI Nawal	P.E.S	Endocrinologie et maladies métabolique
63	ABOU EL HASSAN Taoufik	P.E.S	Anésthésie-réanimation
64	SAMLANI Zouhour	P.E.S	Gastro-entérologie
65	LAGHMARI Mehdi	P.E.S	Neurochirurgie
66	ABOUSSAIR Nisrine	P.E.S	Génétique
67	BENCHAMKHA Yassine	P.E.S	Chirurgie réparatrice et plastique
68	CHAFIK Rachid	P.E.S	Traumato-orthopédie
69	MADHAR Si Mohamed	P.E.S	Traumato-orthopédie
70	EL HAOURY Hanane	P.E.S	Traumato-orthopédie
71	ABKARI Imad	P.E.S	Traumato-orthopédie
72	EL BOUIHI Mohamed	P.E.S	Stomatologie et chirurgie maxillo faciale
73	LAKMICHI Mohamed Amine	P.E.S	Urologie
74	AGHOUTANE El Mouhtadi	P.E.S	Chirurgie pédiatrique
75	HOCAR Ouafa	P.E.S	Dermatologie
76	EL KARIMI Saloua	P.E.S	Cardiologie
77	EL BOUCHTI Imane	P.E.S	Rhumatologie
78	AMRO Lamyae	P.E.S	Pneumo-phtisiologie
79	ZYANI Mohammad	P.E.S	Médecine interne
80	GHOUNDALE Omar	P.E.S	Urologie
81	QACIF Hassan	P.E.S	Médecine interne
82	BEN DRISS Laila	P.E.S	Cardiologie
83	MOUFID Kamal	P.E.S	Urologie
84	QAMOUSS Youssef	P.E.S	Anésthésie réanimation
85	EL BARNI Rachid	P.E.S	Chirurgie générale
86	KRIET Mohamed	P.E.S	Ophtalmologie

87	BOUCHENTOUF Rachid	P.E.S	Pneumo-phtisiologie
88	ABOUCHADI Abdeljalil	P.E.S	Stomatologie et chirurgie maxillo faciale
89	BASRAOUI Dounia	P.E.S	Radiologie
90	RAIS Hanane	P.E.S	Anatomie Pathologique
91	BELKHOU Ahlam	P.E.S	Rhumatologie
92	ZAOUI Sanaa	P.E.S	Pharmacologie
93	MSOUGAR Yassine	P.E.S	Chirurgie thoracique
94	EL MGHARI TABIB Ghizlane	P.E.S	Endocrinologie et maladies métaboliques
95	DRAISS Ghizlane	P.E.S	Pédiatrie
96	EL IDRISSI SLITINE Nadia	P.E.S	Pédiatrie
97	RADA Noureddine	P.E.S	Pédiatrie
98	BOURRAHOUAT Aicha	P.E.S	Pédiatrie
99	MOUAFFAK Youssef	P.E.S	Anesthésie-réanimation
100	ZIADI Amra	P.E.S	Anesthésie-réanimation
101	ANIBA Khalid	P.E.S	Neurochirurgie
102	TAZI Mohamed Illias	P.E.S	Hématologie clinique
103	ROCHDI Youssef	P.E.S	Oto-rhino-laryngologie
104	FADILI Wafaa	P.E.S	Néphrologie
105	ADALI Imane	P.E.S	Psychiatrie
106	ZAHLANE Kawtar	P.E.S	Microbiologie- virologie
107	LOUHAB Nisrine	P.E.S	Neurologie
108	HAROU Karam	P.E.S	Gynécologie-obstétrique
109	BASSIR Ahlam	P.E.S	Gynécologie-obstétrique
110	BOUKHANNI Lahcen	P.E.S	Gynécologie-obstétrique
111	FAKHIR Bouchra	P.E.S	Gynécologie-obstétrique
112	BENHIMA Mohamed Amine	P.E.S	Traumatologie-orthopédie
113	HACHIMI Abdelhamid	P.E.S	Réanimation médicale
114	EL KHAYARI Mina	P.E.S	Réanimation médicale
115	AISSAOUI Younes	P.E.S	Anésthésie-réanimation
116	BAIZRI Hicham	P.E.S	Endocrinologie et maladies métaboliques
117	ATMANE El Mehdi	P.E.S	Radiologie
118	EL AMRANI Moulay Driss	P.E.S	Anatomie
119	BELBARAKA Rhizlane	P.E.S	Oncologie médicale
120	ALJ Soumaya	P.E.S	Radiologie

121	OUBAHA Sofia	P.E.S	Physiologie
122	EL HAOUATI Rachid	P.E.S	Chirurgie Cardio-vasculaire
123	BENALI Abdeslam	P.E.S	Psychiatrie
124	MLIHA TOUATI Mohammed	P.E.S	Oto-rhino-laryngologie
125	MARGAD Omar	P.E.S	Traumatologie-orthopédie
126	KADDOURI Said	P.E.S	Médecine interne
127	ZEMRAOUI Nadir	P.E.S	Néphrologie
128	EL KHADER Ahmed	P.E.S	Chirurgie générale
129	LAKOUICHMI Mohammed	P.E.S	Stomatologie et chirurgie maxillo faciale
130	DAROUASSI Youssef	P.E.S	Oto-rhino-laryngologie
131	BENJELLOUN HARZIMI Amine	P.E.S	Pneumo-phtisiologie
132	FAKHRI Anass	P.E.S	Histologie-embyologie cytogénétique
133	SALAMA Tarik	P.E.S	Chirurgie pédiatrique
134	CHRAA Mohamed	P.E.S	Physiologie
135	ZARROUKI Youssef	P.E.S	Anesthésie-réanimation
136	AIT BATAHAR Salma	P.E.S	Pneumo-phtisiologie
137	ADARMOUCH Latifa	P.E.S	Médecine communautaire (médecine préventive, santé publique et hygiène)
138	BELBACHIR Anass	P.E.S	Anatomie pathologique
139	HAZMIRI Fatima Ezzahra	P.E.S	Histologie-embyologie cytogénétique
140	EL KAMOUNI Youssef	P.E.S	Microbiologie-virologie
141	SERGHINI Issam	P.E.S	Anesthésie-réanimation
142	EL MEZOUARI El Mostafa	P.E.S	Parasitologie mycologie
143	ABIR Badreddine	P.E.S	Stomatologie et chirurgie maxillo faciale
144	GHAZI Mirieme	P.E.S	Rhumatologie
145	ZIDANE Moulay Abdelfettah	P.E.S	Chirurgie thoracique
146	LAHKIM Mohammed	P.E.S	Chirurgie générale
147	MOUHSINE Abdelilah	P.E.S	Radiologie
148	TOURABI Khalid	P.E.S	Chirurgie réparatrice et plastique
149	BELHADJ Ayoub	Pr Ag	Anesthésie-réanimation
150	BOUZERDA Abdelmajid	Pr Ag	Cardiologie
151	ARABI Hafid	Pr Ag	Médecine physique et réadaptation

			fonctionnelle
152	ARSALANE Adil	Pr Ag	Chirurgie thoracique
153	NADER Youssef	Pr Ag	Traumatologie-orthopédie
154	SEDDIKI Rachid	Pr Ag	Anesthésie-réanimation
155	ABDELFETTAH Youness	Pr Ag	Rééducation et réhabilitation fonctionnelle
156	REBAHI Houssam	Pr Ag	Anesthésie-réanimation
157	BENNAOUI Fatiha	Pr Ag	Pédiatrie
158	ZOUIZRA Zahira	Pr Ag	Chirurgie Cardio-vasculaire
159	SEBBANI Majda	Pr Ag	Médecine Communautaire (Médecine préventive, santé publique et hygiene
160	ABDOU Abdessamad	Pr Ag	Chirurgie Cardio-vasculaire
161	HAMMOUNE Nabil	Pr Ag	Radiologie
162	ESSADI Ismail	Pr Ag	Oncologie médicale
163	MESSAOUDI Redouane	Pr Ag	Ophtalmologie
164	ALJALIL Abdelfattah	Pr Ag	Oto-rhino-laryngologie
165	LAFFINTI Mahmoud Amine	Pr Ag	Psychiatrie
166	RHARRASSI Issam	Pr Ag	Anatomie-patologique
167	ASSERRAJI Mohammed	Pr Ag	Néphrologie
168	JANAH Hicham	Pr Ag	Pneumo-phtisiologie
169	NASSIM SABAH Taoufik	Pr Ag	Chirurgie réparatrice et plastique E]
170	ELBAZ Meriem	Pr Ag	Pédiatrie
171	BELGHMAIDI Sarah	Pr Ag	Ophtalmologie
172	FENANE Hicham	Pr Ag	Chirurgie thoracique
173	GEBRATI Lhoucine	Pr Hab	Chimie
174E]	FDIL Naima	Pr Hab	Chimie de coordination bio-organique
175	LOQMAN Souad	Pr Hab	Microbiologie et toxicolgie environnementale
176	BAALLAL Hassan	Pr Ag	Neurochirurgie
177	BELFQUIH Hatim	Pr Ag	Neurochirurgie
178	MILOUDI Mouhcine	Pr Ag	Microbiologie-virologie
179	AKKA Rachid	Pr Ag	Gastro-entérologie
180	BABA Hicham	Pr Ag	Chirurgie générale
181	MAOUJOUD Omar	Pr Ag	Néphrologie
182	SIRBOU Rachid	Pr Ag	Médecine d'urgence et de

			catastrophe
183	EL FILALI Oualid	Pr Ag	Chirurgie Vasculaire périphérique
184	EL- AKHIRI Mohammed	Pr Ag	Oto-rhino-laryngologie
185	HAJJI Fouad	Pr Ag	Urologie
186	OUMERZOUK Jawad	Pr Ag	Neurologie
187	JALLAL Hamid	Pr Ag	Cardiologie
188	ZBITOU Mohamed Anas	Pr Ag	Cardiologie
189	RAISSI Abderrahim	Pr Ag	Hématologie clinique
190	BELLASRI Salah	Pr Ag	Radiologie
191	DAMI Abdallah	Pr Ag	Médecine Légale
192	AZIZ Zakaria	Pr Ag	Stomatologie et chirurgie maxillo faciale
193	ELOUARDI Youssef	Pr Ag	Anesthésie-réanimation
194	LAHLIMI Fatima Ezzahra	Pr Ag	Hématologie clinique
195	EL FAKIRI Karima	Pr Ag	Pédiatrie
196	NASSIH Houda	Pr Ag	Pédiatrie
197	LAHMINI Widad	Pr Ag	Pédiatrie
198	BENANTAR Lamia	Pr Ag	Neurochirurgie
199	EL FADLI Mohammed	Pr Ag	Oncologie mé0dicale
200	AIT ERRAMI Adil	Pr Ag	Gastro-entérologie
201	CHETTATI Mariam	Pr Ag	Néphrologie
202	SAYAGH Sanae	Pr Ag	Hématologie
203	BOUTAKIOUTE Badr	Pr Ag	Radiologie
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205	ACHKOUN Abdessalam	Pr Ass	Anatomie
206	DARFAOUI Mouna	Pr Ass	Radiothérapie
207	EL-QADIRY Rabiy	Pr Ass	Pédiatrie
208	ELJAMILI Mohammed	Pr Ass	Cardiologie
209	HAMRI Asma	Pr Ass	Chirurgie Générale
210	EL HAKKOUNI Awatif	Pr Ass	Parasitologie mycologie
211	ELATIQI Oumkeltoum	Pr Ass	Chirurgie réparatrice et plastique
212	BENZALIM Meriam	Pr Ass	Radiologie
213	ABOULMAKARIM Siham	Pr Ass	Biochimie
214	LAMRANI HANCHI Asmae	Pr Ass	Microbiologie-virologie
215	HAJHOUJI Farouk	Pr Ass	Neurochirurgie
216	EL KHASSOUI Amine	Pr Ass	Chirurgie pédiatrique
217	MEFTAH Azzelarab	Pr Ass	Endocrinologie et maladies

			métaboliques
218	DOUIREK Fouzia	Pr Ass	Anesthésie-réanimation
219	BELARBI Marouane	Pr Ass	Néphrologie
220	AMINE Abdellah	Pr Ass	Cardiologie
221	CHETOUI Abdelkhalek	Pr Ass	Cardiologie
222	WARDA Karima	Pr Ass	Microbiologie
223	EL AMIRI My Ahmed	Pr Ass	Chimie de Coordination bio-organnique
224	ROUKHSI Redouane	Pr Ass	Radiologie
225	EL GAMRANI Younes	Pr Ass	Gastro-entérologie
226	ARROB Adil	Pr Ass	Chirurgie réparatrice et plastique
227	SALLAHI Hicham	Pr Ass	Traumatologie-orthopédie
228	SBAAI Mohammed	Pr Ass	Parasitologie-mycologie
229	FASSI FIHRI Mohamed jawad	Pr Ass	Chirurgie générale
230	BENCHAFAI Ilias	Pr Ass	Oto-rhino-laryngologie
231	EL JADI Hamza	Pr Ass	Endocrinologie et maladies métaboliques
232	SLIOUI Badr	Pr Ass	Radiologie
233	AZAMI Mohamed Amine	Pr Ass	Anatomie pathologique
234	YAHYAOUI Hicham	Pr Ass	Hématologie
235	ABALLA Najoua	Pr Ass	Chirurgie pédiatrique
236	MOUGUI Ahmed	Pr Ass	Rhumatologie
237	SAHRAOUI Houssam Eddine	Pr Ass	Anesthésie-réanimation
238	AABBASSI Bouchra	Pr Ass	Pédopsychiatrie
23 9	SBAI Asma	Pr Ass	Informatique
240	HAZIME Raja	Pr Ass	Immunologie
241	CHEGGOUR Mouna	Pr Ass	Biochimie
242	RHEZALI Manal	Pr Ass	Anesthésie-réanimation
243	ZOUITA Btissam	Pr Ass	Radiologie
244	MOULINE Souhail	Pr Ass	Microbiologie-virologie
245	AZIZI Mounia	Pr Ass	Néphrologie
246	BENYASS Youssef	Pr Ass	Traumato-orthopédie
247	BOUHAMIDI Ahmed	Pr Ass	Dermatologie
248	YANISSE Siham	Pr Ass	Pharmacie galénique
249	DOULHOUSNE Hassan	Pr Ass	Radiologie
250	KHALLIKANE Said	Pr Ass	Anesthésie-réanimation
251	BENAMEUR Yassir	Pr Ass	Médecine nucléaire

252	ZIRAOUI Oualid	Pr Ass	Chimie thérapeutique
253	IDALENE Malika	Pr Ass	Maladies infectieuses
254	LACHHAB Zineb	Pr Ass	Pharmacognosie
255	ABOUDOURIB Maryem	Pr Ass	Dermatologie
256	AHBALA Tariq	Pr Ass	Chirurgie générale
257	LALAOUI Abdessamad	Pr Ass	Pédiatrie
258	ESSAFTI Meryem	Pr Ass	Anesthésie-réanimation
259	RACHIDI Hind	Pr Ass	Anatomie pathologique
260	FIKRI Oussama	Pr Ass	Pneumo-phtisiologie
261	EL HAMDAOUI Omar	Pr Ass	Toxicologie
262	EL HAJJAMI Ayoub	Pr Ass	Radiologie
263	BOUMEDIANE El Mehdi	Pr Ass	Traumato-orthopédie
264	RAFI Sana	Pr Ass	Endocrinologie et maladies métaboliques
265	JEBRANE Ilham	Pr Ass	Pharmacologie
266	LAKHDAR Youssef	Pr Ass	Oto-rhino-laryngologie
267	LGHABI Majida	Pr Ass	Médecine du Travail
268	AIT LHAJ El Houssaine	Pr Ass	Ophtalmologie
269	RAMRAOUI Mohammed-Es-said	Pr Ass	Chirurgie générale
270	EL MOUHAFID Faisal	Pr Ass	Chirurgie générale
271	AHMANNA Hussein-choukri	Pr Ass	Radiologie
272	AIT M'BAREK Yassine	Pr Ass	Neurochirurgie
273	ELMASRIOUI Joumana	Pr Ass	Physiologie
274	FOURA Salma	Pr Ass	Chirurgie pédiatrique
275	LASRI Najat	Pr Ass	Hématologie clinique
276	BOUKTIB Youssef	Pr Ass	Radiologie
277	MOUROUTH Hanane	Pr Ass	Anesthésie-réanimation
278	BOUZID Fatima zahrae	Pr Ass	Génétique
279	MRHAR Soumia	Pr Ass	Pédiatrie
280	QUIDDI Wafa	Pr Ass	Hématologie
281	BEN HOUMICH Taoufik	Pr Ass	Microbiologie-virologie
282	FETOUI Imane	Pr Ass	Pédiatrie
283	FATH EL KHIR Yassine	Pr Ass	Traumato-orthopédie
284	NASSIRI Mohamed	Pr Ass	Traumato-orthopédie
285	AIT-DRISS Wiam	Pr Ass	Maladies infectieuses
286	AIT YAHYA Abdelkarim	Pr Ass	Cardiologie
287	DIANI Abdelwahed	Pr Ass	Radiologie

288	AIT BELAID Wafae	Pr Ass	Chirurgie générale
289	ZTATI Mohamed	Pr Ass	Cardiologie
290	HAMOUCHE Nabil	Pr Ass	Néphrologie
291	ELMARDOULI Mouhcine	Pr Ass	Chirurgie Cardio-vasculaire
292	BENNIS Lamiae	Pr Ass	Anesthésie-réanimation
293	BENDAOUD Layla	Pr Ass	Dermatologie
294	HABBAB Adil	Pr Ass	Chirurgie générale
295	CHATAR Achraf	Pr Ass	Urologie
296	OUMGHAR Nezha	Pr Ass	Biophysique
297	HOUMAID Hanane	Pr Ass	Gynécologie-obstétrique
298	YOUSFI Jaouad	Pr Ass	Gériatrie
299	NACIR Oussama	Pr Ass	Gastro-entérologie
300	BABACHEIKH Safia	Pr Ass	Gynécologie-obstétrique
301	ABDOURAFIQ Hasna	Pr Ass	Anatomie
302	TAMOUR Hicham	Pr Ass	Anatomie
303	IRAQI HOUSSAINI Kawtar	Pr Ass	Gynécologie-obstétrique
304	EL FAHIRI Fatima Zahrae	Pr Ass	Psychiatrie
305	BOUKIND Samira	Pr Ass	Anatomie
306	LOUKHNATI Mehdi	Pr Ass	Hématologie clinique
307	ZAHROU Farid	Pr Ass	Neurochirugie
308	MAAROUFI Fathillah Elkarim	Pr Ass	Chirurgie générale
309	EL MOUSSAOUI Soufiane	Pr Ass	Pédiatrie
310	BARKICHE Samir	Pr Ass	Radiothérapie
311	ABI EL AALA Khalid	Pr Ass	Pédiatrie
312	AFANI Leila	Pr Ass	Oncologie médicale
313	EL MOULOUA Ahmed	Pr Ass	Chirurgie pédiatrique
314	LAGRINE Mariam	Pr Ass	Pédiatrie
315	OULGHOUL Omar	Pr Ass	Oto-rhino-laryngologie
316	AMOCH Abdelaziz	Pr Ass	Urologie
317	ZAHLAN Safaa	Pr Ass	Neurologie
318	EL MAHFOUDI Aziz	Pr Ass	Gynécologie-obstétrique
319	CHEHBOUNI Mohamed	Pr Ass	Oto-rhino-laryngologie
320	LAIRANI Fatima ezzahra	Pr Ass	Gastro-entérologie
321	SAADI Khadija	Pr Ass	Pédiatrie
322	DAFIR Kenza	Pr Ass	Génétique
323	CHERKAOUI RHAZOUANI Oussama	Pr Ass	Neurologie
324	ABAINOU Lahoussaine	Pr Ass	Endocrinologie et maladies

			métaboliques
325	BENCHANNA Rachid	Pr Ass	Pneumo-phtisiologie
326	TITOU Hicham	Pr Ass	Dermatologie
327	EL GHOUL Naoufal	Pr Ass	Traumato-orthopédie
328	BAHI Mohammed	Pr Ass	Anesthésie-réanimation
329	RAITEB Mohammed	Pr Ass	Maladies infectieuses
330	DREF Maria	Pr Ass	Anatomie pathologique
331	ENNACIRI Zainab	Pr Ass	Psychiatrie
332	BOUSSAIDANE Mohammed	Pr Ass	Traumato-orthopédie
333	JENDOUZI Omar	Pr Ass	Urologie
334	MANSOURI Maria	Pr Ass	Génétique
335	ERRIFAIY Hayate	Pr Ass	Anesthésie-réanimation
336	BOUKOUB Naila	Pr Ass	Anesthésie-réanimation
337	OUACHAOU Jamal	Pr Ass	Anesthésie-réanimation
338	EL FARGANI Rania	Pr Ass	Maladies infectieuses
339	IJIM Mohamed	Pr Ass	Pneumo-phtisiologie
340	AKANOUR Adil	Pr Ass	Psychiatrie
341	ELHANAFI Fatima Ezzohra	Pr Ass	Pédiatrie
342	MERBOUH Manal	Pr Ass	Anesthésie-réanimation
343	BOUROUMANE Mohamed Rida	Pr Ass	Anatomie
344	IJDDA Sara	Pr Ass	Endocrinologie et maladies métaboliques

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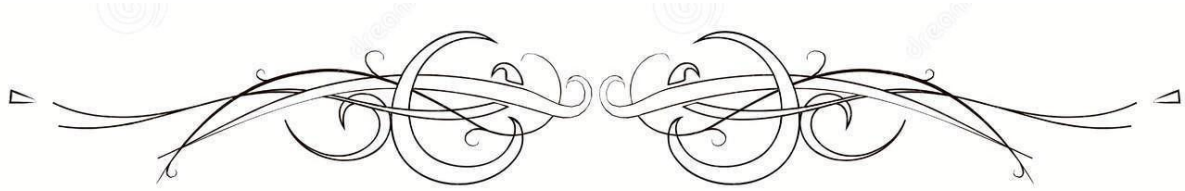
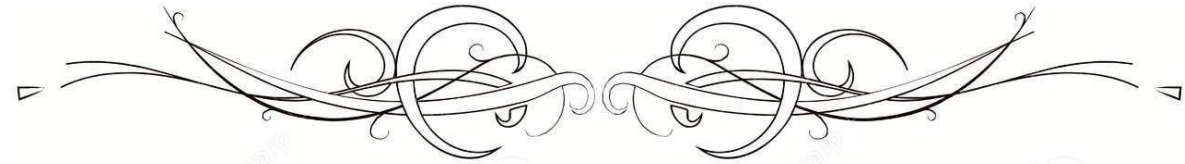


DEDICATIONS



I dedicate this thesis to...

My Dearest Mother: FOUZIA BOUNOUARA :

As I sit down to pen my feelings, words alone feel insufficient to express the depth of my gratitude and love for you. You are the guiding star of my life, and in your warm embrace, I have discovered a love that knows no bounds. Your strength, boundless grace, and unwavering support have been my pillars through every twist and turn. In your eyes, I find wisdom and endless care, creating a sanctuary where troubles disappear and only love prevails. Your love is a melody, a gentle hum that resonates in my heart with each beat. For the countless sacrifices and the nurturing embrace that you provide, I dedicate these words as a token of my everlasting gratitude. You are my rock, my endless light, and in your love, I find the strength to face any challenge and the joy that lights up my darkest days I Love you and I will never be able to to express my gratitude to your endless support. ***I love you mom.***

To my beloved father ABDEL HAMID GHAZZAR :

Dear Dad, I am immensely grateful to Almighty Allah for blessing me with a father like you. You embody everything a child could wish for in a father— a great listener, a wonderful adviser, and an enormous supporter. Throughout my life, you have fulfilled these roles with unwavering commitment. Not a single day has passed where you stopped me from pursuing my dreams; instead, you have been the constant source of encouragement, cheering me on to keep going. Your belief in me has been a guiding light, always instilling the confidence that I am the best and that no challenge is insurmountable. You've taught me that I am capable of overcoming any obstacle, comparing me to a warrior facing a conqueror and that no one can defeat a GHAZZAR like us. Your love and support have been my pillars, and I want you to know that I love you, Dad, not just to the moon and back, but beyond. ***.I love you dad.***

To my dear brother HAITHAM GHAZZAR :

From the days of childhood mischief to the challenges of adulthood, you have been more than a big brother to me – you've been a friend, a mentor, and a constant source of inspiration. Your unwavering support and encouragement have shaped my journey in ways words cannot capture.

Our shared laughter and even the occasional disagreements have woven the fabric of our unique relationship, making it resilient and beautiful. As we navigate the twists and turns of life, I find comfort in knowing that you are there, a steadfast presence in my corner.

Even if we were separate throughout the last years, I want you to know that you are always on my mind, constantly missing you

I love you big brother

To my beloved brother AYOUB GHAZZAR :

From our young age, people always told me that you were protective of me, as if we were twins. This has always been touching to me. As we've grown up, I've come to realize that there is no better best friend than you. We've supported each other through the difficulties in life, healing together. I am immensely grateful for your delicate, careful, and constant presence, especially when it came to writing my thesis. It's a blessing to have you by my side at every step of this journey. I do not have words to appreciate you for everything that you do for me. I hope we both witness each other achieve the impossible, knowing that your brilliant mind can conquer any challenge. Within our family, you stand out as the most intelligent man I know, and for that, I am proud to be your sister. With heartfelt thanks and pride

I love you brother

To my kind Brother MOHAMED AMINE GHAZZAR :

You are the craziest person I know, never saying no to any adventure, boldly traveling through unfamiliar parts of the world. Yet, within that adventurous spirit, I find the most selfless guy I know—someone who won't hesitate to help, who says yes when needed the most. You've grown up preserving the child within you, staying kind and warm. Simultaneously, you've faced life's toughest lessons, emerging as an unbeatable man. Though you're my little brother, I'll always love you as that little kid, no matter how much you grow.

I love you brother.

To my paternal grandparents:

I am so appreciative to have the loyal, supportive, and caring family that I do. Thank you for accepting me for who I am and where I am at right now. It is a huge source of comfort to know how much I am genuinely loved.

In memory of my maternal grandparents:

Dear grandparents, you are no longer with us. But your love and memories will always be in my heart forever. May Allah give your souls eternal peace and grant you heaven.

To my dearest ZACK :

To my best friend in med school, and my man in life

If I could choose the best moment of my time in medical school it would certainly be the day, I met you. To find a person whom understands me without a word spoken in a blessing. I may have known you from 1rst year but each day is a new adventure. Your presence in my life is a source of boundless joy, and your love is a balm that soothes my soul. In the tapestry of our shared moments, I find the threads of laughter, shared dreams, and the quiet comfort of knowing you are by my side through every twist and turn.

To my best friend : KHADIJA,

I may have known you before med school. But I feel like we've known each other since forever. Our adventure in Marrakech will be the best memory I hold of you, to be your friend is an honor. Cause you are the most talented person I know and for that I am so proud

To my friends : MAROUANE and SALMA,

In the dance of life, your partnership is a graceful and harmonious melody. Your love story, a testament to patience, understanding, and unwavering commitment, is an inspiration to all who witness it.

To my friends : MOUHCINE, REDA, TAHA, ANAS, ANAS:

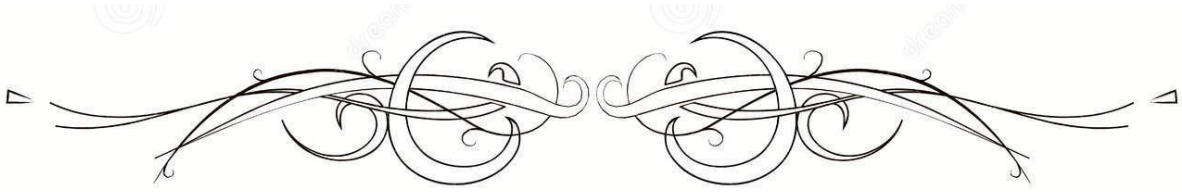
To my homies who showed me that life can be enjoyed just by smiling, you guys made my days in med school so joyful even when it was at its hardest, you were not only friends but brothers to me

To my friends : SAFIA, GHALI,

Encountering individuals as wonderful as you have filled my heart with warmth throughout my years in medical school. Every interaction with you has been a welcoming and exceptional experience, and the conversations we share have been so enriching that they could extend into the late hours, bringing forth new insights each time.

ASMAE, FATIM ZAHRA, WALAE, YOUNESS, AZIZ, ACHRAF, AMINE :

I dedicate this sentiment to each one of you, my friends – a heartfelt acknowledgment of the shared laughter, the countless adventures, and the comforting embrace of your friendship. Through highs and lows, your camaraderie has been a constant, a testament to the enduring bonds we've forged.



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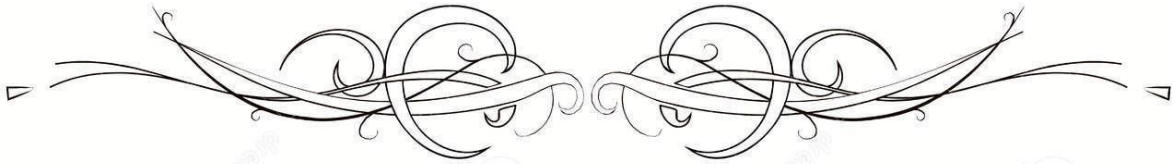


To Professor SAID YOUNOUS

Head of Pediatric Intensive Care Unit

Professor of Anesthesiology-Resuscitation

You have done me a great honor by kindly accepting to chair my thesis jury as a president. I want to express my deep gratitude for your crucial role as the president of my thesis and for guiding me during my pediatric internship in my fifth year of medical studies. Your expertise and dedication to teaching have been pivotal elements in my academic journey and my training in pediatrics. Your enlightened mentorship has shaped my understanding of this complex field, and I have cherished every opportunity to learn alongside you. Your generosity in sharing your knowledge and experience has greatly enriched my learning, and I am thankful for the positive impact you've had on my medical career. Thank you immensely for being an exceptional guide and an inspiring role model throughout this journey

To my supervisor Professor MOHAMED OULAD SAIAD

Head of Pediatric General Surgery Department

Professor of Pediatric Surgery

I would like to express my sincere gratitude to you Professor for your invaluable guidance, unwavering support, and dedication throughout my academic journey. Your profound knowledge, mentorship, and commitment to excellence have been instrumental in shaping my intellectual growth and scholarly pursuits. Professor OULAD SAIAD you have been more than an educator; you have been a source of inspiration, challenging me to think critically, fostering a love for learning, and instilling in me the confidence to pursue academic endeavors beyond my expectations. I am truly appreciative of the time and effort invested in providing constructive feedback, encouraging exploration of diverse perspectives, and fostering an environment conducive to academic curiosity. The impact of your mentorship extends far beyond the classroom, influencing not only my academic achievements but also my personal and professional development.

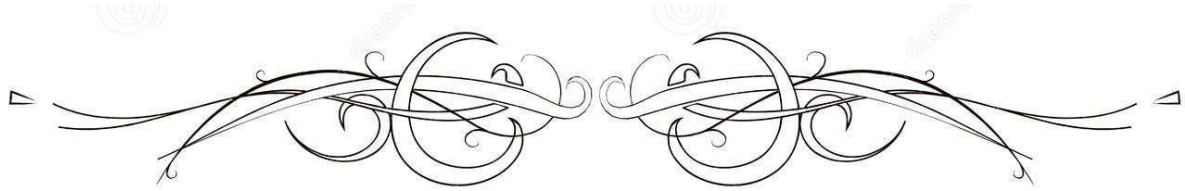
I hope I have lived up to your trust and expectations and please accept, dear master, through this work the assurance of my esteem and of my deep respect.

TO PROFESSOR MAOULAININE FADL MRABIH RABOU

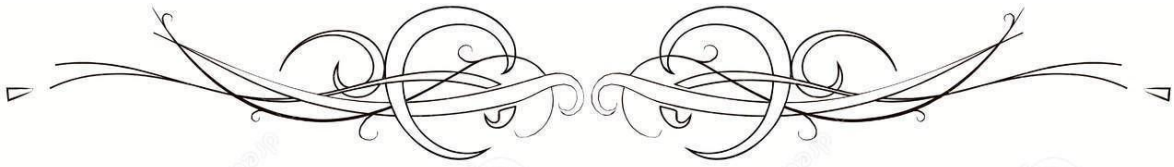
Head of Pediatric neonatology Department

Professor of Pediatrics

You have done me a great honor by accepting to be associated with our thesis jury. Your undeniable competence, your charisma and your human qualities make you a great professor and inspire me a great admiration. Allow me, dear master, to express to you my deep respect and my high consideration.



ABREVIATIONS



List of abbreviations

BE	:	Bladder exstrophy
EEC	:	Exstrophy epispadias complex
PD	:	Penis deformation
TE	:	Testicular ectopia
IA	:	Imperforated anus
AG	:	Ambiguous genitalia
SB	:	Spina bifida
AVO	:	Anterior vaginal orifice
ASD	:	Atrial septal defect(CIA)
PDA	:	patent ductus arteriosus (PCA)
BEEC	:	Bladder exstrophy epispasias complex
MSRE	:	Modern staged repair of bladder exstrophy
CPRE	:	Complete primary repair of bladder exstrophy

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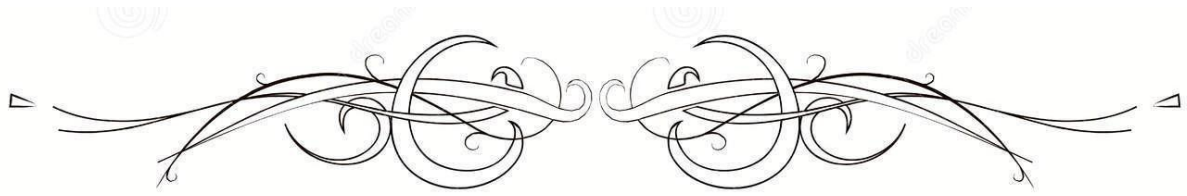

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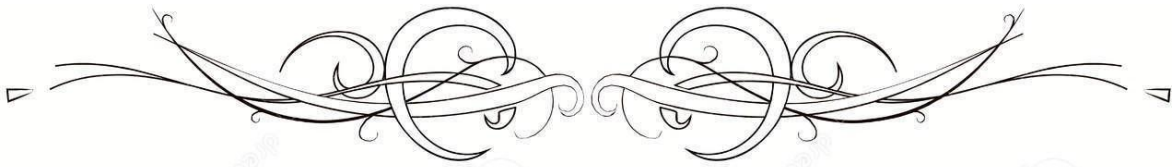


INTRODUCTION

Bladder exstrophy is a rare congenital anomaly that profoundly affects the urinary system. This condition presents a unique and complex challenge, as it involves the malformation of the bladder and adjacent structures during fetal development. Bladder exstrophy is characterized by the complete or partial absence of the abdominal wall, exposing the inner bladder mucosa to the outside world. This condition not only has significant physical and cosmetic implications but also poses various functional and psychological challenges for those affected. In this introduction, we will explore the essential aspects of bladder exstrophy, including its etiology, clinical presentation, and the medical and surgical interventions that can help individuals with this condition lead fulfilling lives. Understanding the intricacies of bladder exstrophy is essential for healthcare professionals, patients, and their families to provide appropriate care, support, and improve the quality of life for those living with this condition

The total prevalence of BE was 2.07 per 100,000 births and it is nearly twice as common among male as among female cases. The proportion of isolated cases was 71%.(1)

The purposes of our study are as follows :

- Report the experience of the General Pediatric Surgery Department of the University Hospital Mohammed VI of Marrakesh, through a series of 45 patients hospitalized in the department between 2012 and 2023
- Compare the results to the data of medical literature.
- Improve the management of this pathology

MATERIALS AND METHODES

I. Materials :

1. Type of this study :

This is a retrospective study of a series of 45 patients that was carried out over a period of 12 years, from January 2012 to May 2023

2. Study frame work :

This study was conducted in the General Pediatric Surgery Department and the Pediatric Intensive Care Unit of the University Hospital Center Mohammed VI of Marrakesh.

3. Study sample :

The study included 45 patients diagnosed with bladder exstrophy

Patients, the ones who were not operated were excluded from this study

II. Methods :

1. Data collection :

For each patient included in the study, the data were collected retrospectively from the medical records and recorded in an operating sheet established for this purpose.

For each medical file included, the following information have been identified:

- Epidemiological : region, Pregnancy follow-up, gravidity, parity, consanguinity, history of maternal use of drugs, alcohol or progestins, similar case in siblings, maternal age, term of the pregnancy, delivery mode, gender
- Clinical: diagnostic delay, visible anatomy deformations, results of the physical examination.
- Radiographic : results of abdominal, hip and Chest X-rays, abdominal,heart and renal ultrasound

- Therapeutic management : age of first operation, type of management in the OR, the practice of bladder neck reconstruction and at what age the practice of osteotomy and traction on patient
- Evolution : Short- and long-term postoperative complications

2. Statistical analysis :

The inputting of texts and tables was done using Microsoft Word XP 2007, and the creation of graphs utilized both the Google Forms platform and Microsoft Excel software. The statistical analysis of the data was conducted using the Google Sheets platform.

RESULTS

I. Epidemiological data :

1. Frequency :

45 patients with bladder exstrophy were hospitalized in the Department of General Pediatric Surgery during the course of our study with the frequency of 4 cases per year

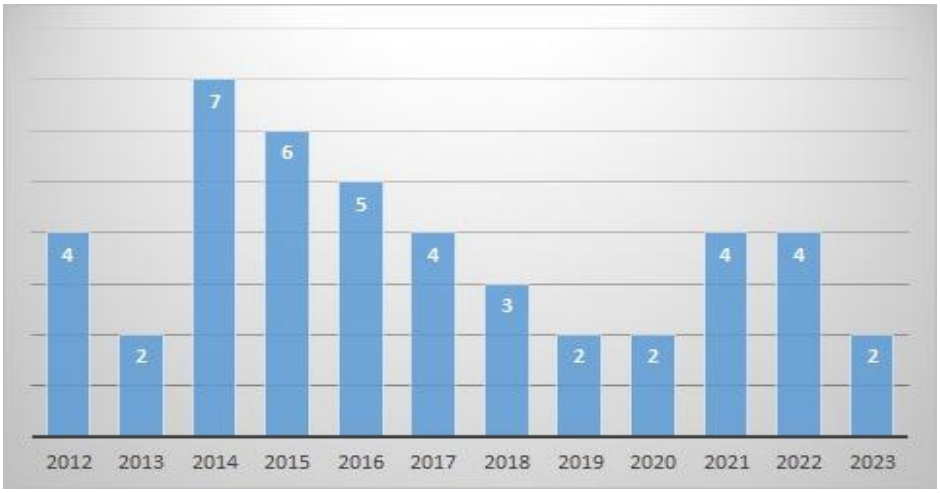


Figure 1 : Annual prevalence of BE per year

2. Gender :

Within the series of our patients, 29 patients were male representing 64.5%, while 16 were females with the percentage of 35,5% with a gender ration M/F of 2

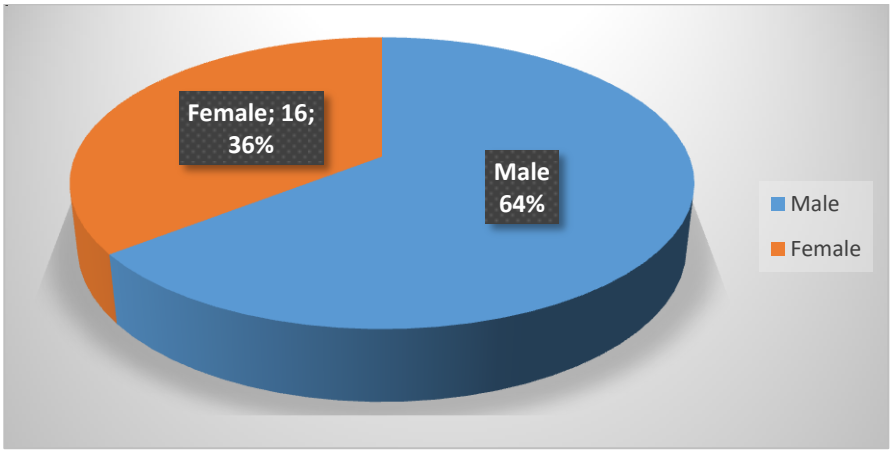


Figure 2 : Prevalence according to gender

3. Consanguity :

11 patients had history of parents consaunguity representing 24.5% while 34 patients had not, representing 75.5%

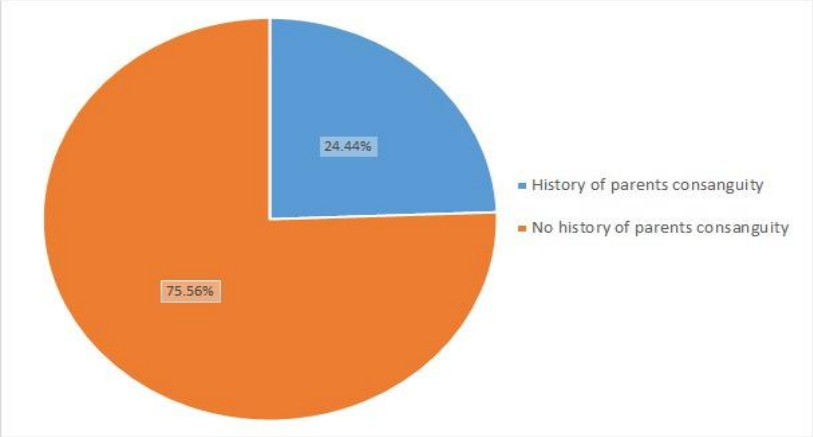


Figure 3 : Rate of consanguity

4. Region :

23 of our patients were mainly from the region of Marrakech-Safi (51%),while 8 are from region of Ouarzazate Drâa-Tafilalet (17,7%),6 from region Souss-Massa (13,3%),6 from Laayoune-Sakia Lhamra (13,3%)and only 2 cases from region of Beni Mellal-Khenifra(4,4%)

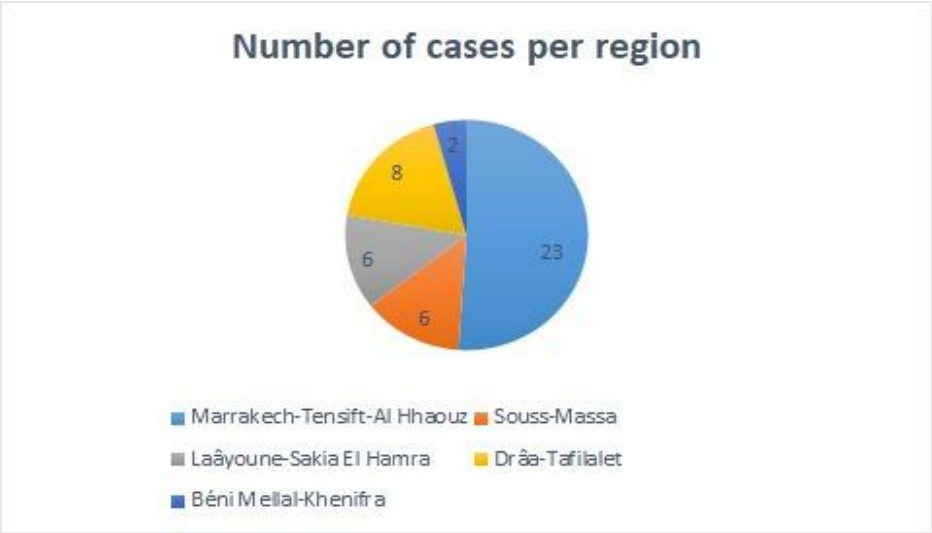


Figure 4 : Number of cases per region

5. Parity :

In our series 5 mothers were primiparous. Within the multiparous mothers there was ; 18 with 2 parities, 6 with 3 parities, 10 with 4 parities, 5 with 5 parities,and 1 with 7 parities

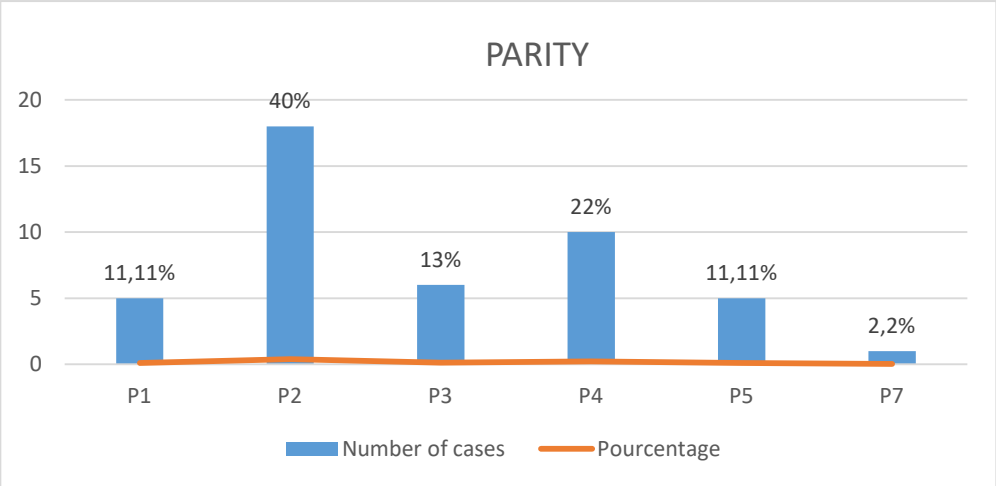


Figure 5 : Distribution of cases by parity

6. Similar case in siblings :

No case of similar medical history in sibling was found

7. Pregnancy follow up :

In our series, 9 mothers were well monitored (20%) while 36 weren't (80%)

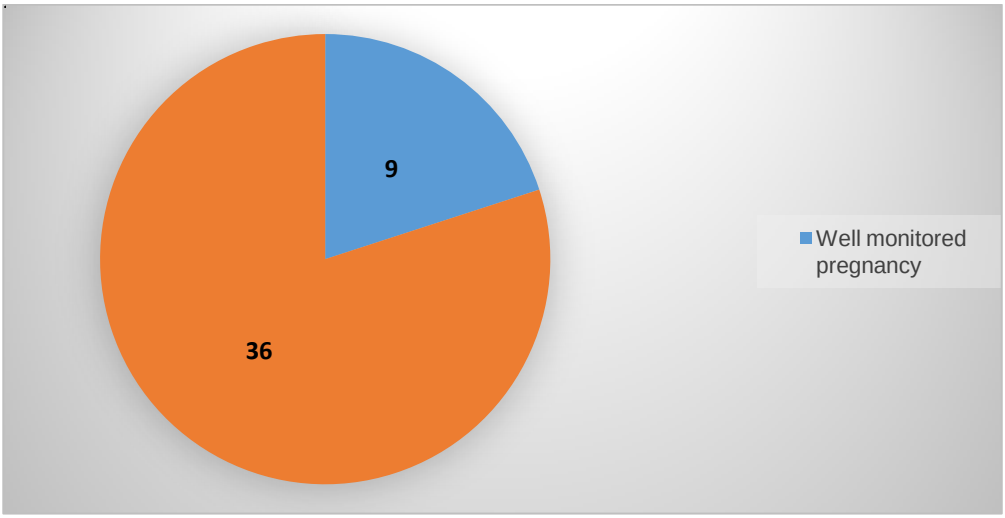


Figure 6 : Distribution of pregnancy follow up

8. Use of substance during pregnancy :

In our series of maternal medical history :

- 2 mothers were diagnosed with diabetes (4%)
- 1 mother with hypertension during pregnancy (2%)
- 1 mother exposed to passive smoking (2%)
- 40 patients received supplements of folic acid and iron

Table I : Use of substance during pregnancy

Substance used	Number of cases	Pourcentage
insulin	2	4,44%
passive smoking	1	2.22%
martial treatment +folic acid	40	88,89%

9. Gestational age and maternal age at birth :

✓ 45 newborns were born at term.

✓ 12 cases (35.5%) were registered at the age 36.

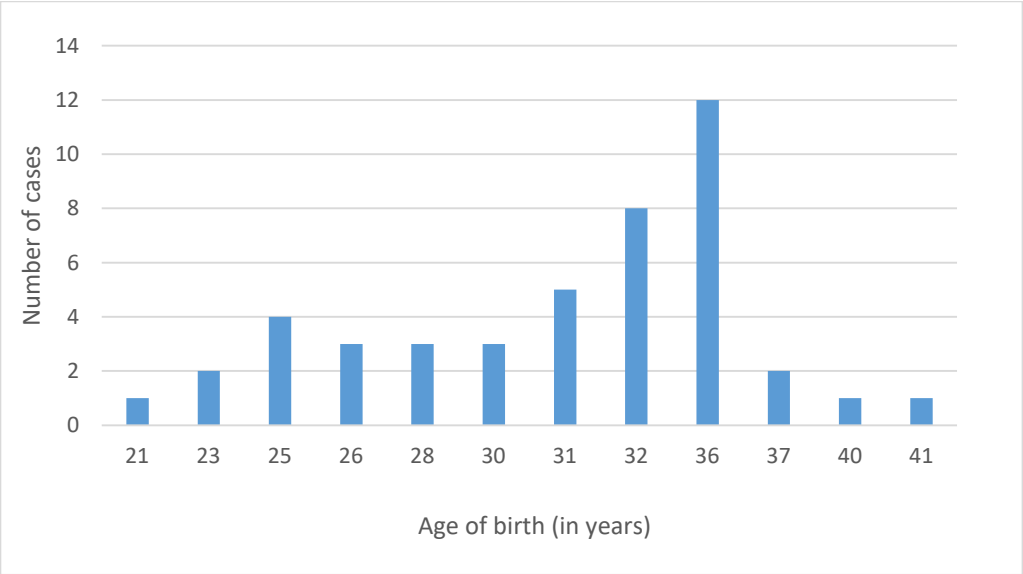


Figure 7 : Maternal age at birth

10. Delivery mode :

41 patients were born by vaginal delivery, representing a percentage of 91,1%. And 4 patients were born by C-section (8,9%).

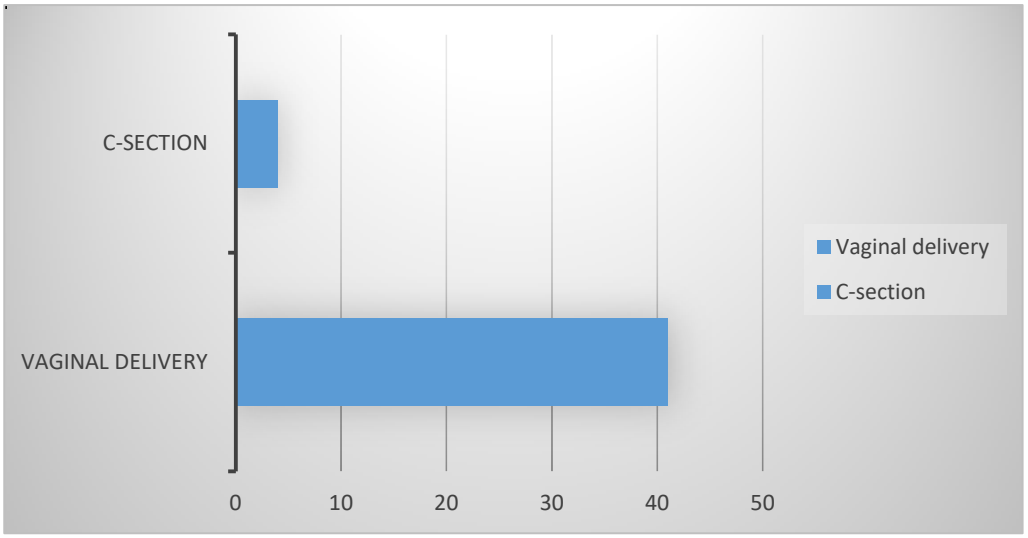


Figure 8 : Distribution of birth method

II. Clinical :

1. Delay of diagnosis :

- All new borns in our study were diagnosed after birth right after the delivery

2. Malformations and results of physical examination :

Table II : Malformations encountered in the study

Malformations	Number of cases	Pourcentage
Hernia	18	40,00%
Penis deformation	8	17,78%
Testicular ectopia	2	4,44%
Imperforated anus	2	4,44%
Ambiguous genitalia	2	4,44%
Spina bidifa	1	2,22%
Anterior vaginal orifice	2	4,44%
Exomphalos	5	11.11%

3. Imaging :

In our series the followings exams had been performed :

Table III : Types of imaging accorded in the study

Type of imaging	Number of cases	Pourcentage
Hip Xray	45	100,00%
Chest Xray	12	26,67%
Abdominal Xray	19	42,22%
Renal ultrasound	30	66,67%
Heart ultrasound	11	24,44%
Spinal cord ultrasound	3	6,67%

✓ For the **renal ultrasound**,19 patients had a normal result while 11 showed the following results :

Table IV : Renal Ultrasound results

Renal Ultrasound results	Number of cases	Pourcentage
Normal	19	42,22%
Left ureterohydronephrosis	4	8,88%
L and R ureterohydronephrosis	5	11,11%
Hypertrophic bladder	2	4,44%

✓ The results of the **hip Xray** showed :

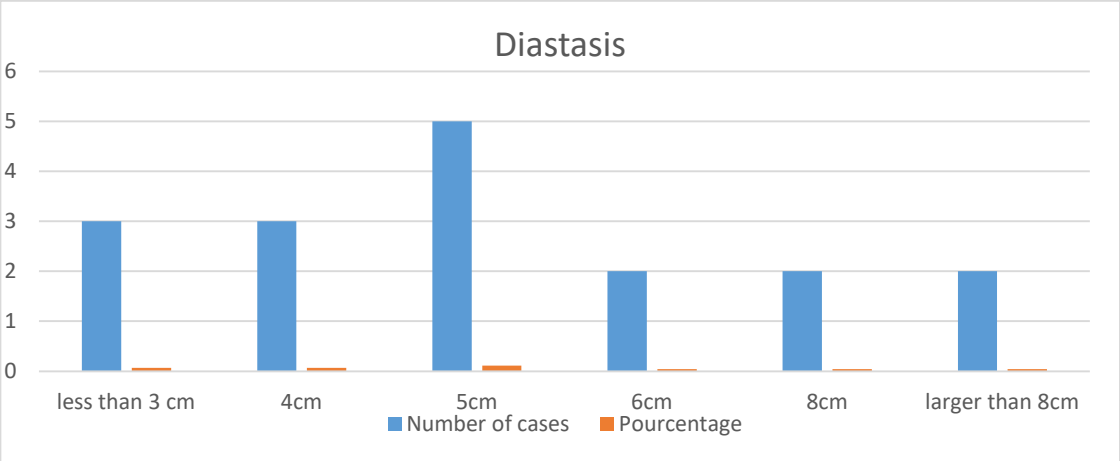


Figure 9 : Results of Hip X-ray

✓ **Results of heart ultrasound**

Table V : Results of heart ultrasound

Heart Ultrasound	Number of cases	Pourcentage
Normal	12	26,67%
Atrial septal defect(CIA)	2	4,44%
ASD +Patent ductus arteriosus(PCA)	1	2,22%
minimal pulmonary stenosis	1	2,22%

✓ **The results** of chest and Abdominal Xray came up normal

✓ **The results** of the Spine cord ultrasound came up norma

III. Therapeutic :

1. age of first operation :

And in our series :

- 7 patients were operated before the age of 3days(155%)
- 11 patients were operated after the age of 3days(24%)
- 9 patients were operated at the age of 1 month (20%)
- 4 patients were operated at the age of 2 months (8.88%)
- 4 patients were operated at the age of 4 month(8.88%)
- 5 patients were operated between the age of 6 months and 1 year (11.11%),
- 2 patients were operated at the age of 1 year and a half (4.44%)
- 1 patient at the age of 2 years old (2.22%)
- 1 patient at the age of 3 years old (2.22%)
- 1 patient at the age of 4 years old (2.22%)

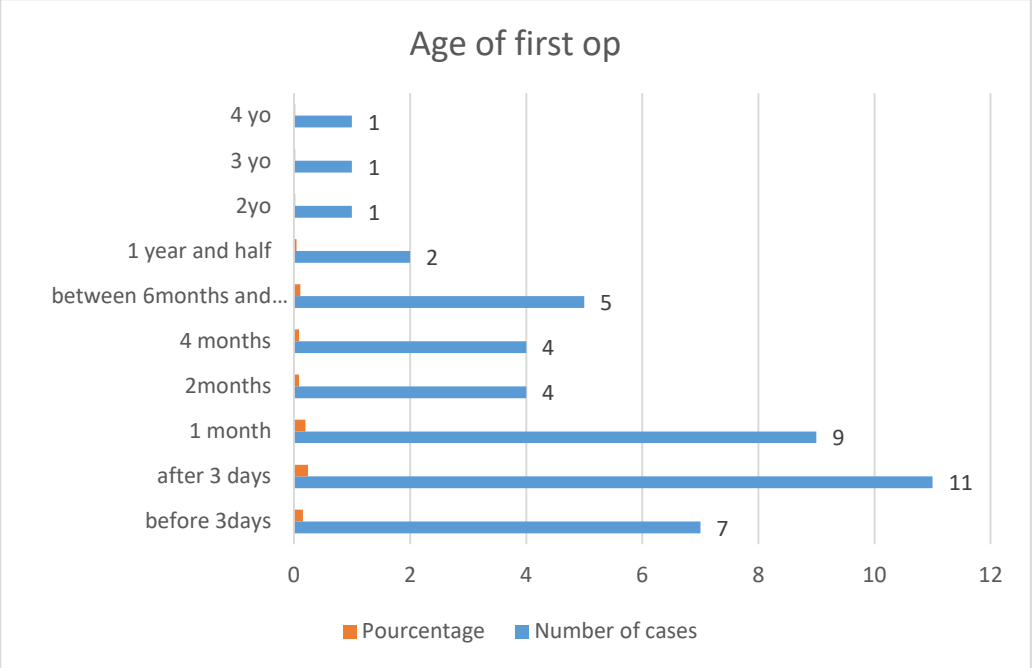


Figure 10 : Delay of first operation

2. Osteotomy :

In our series of 45 patients, 29 had an osteotomy representing 65%

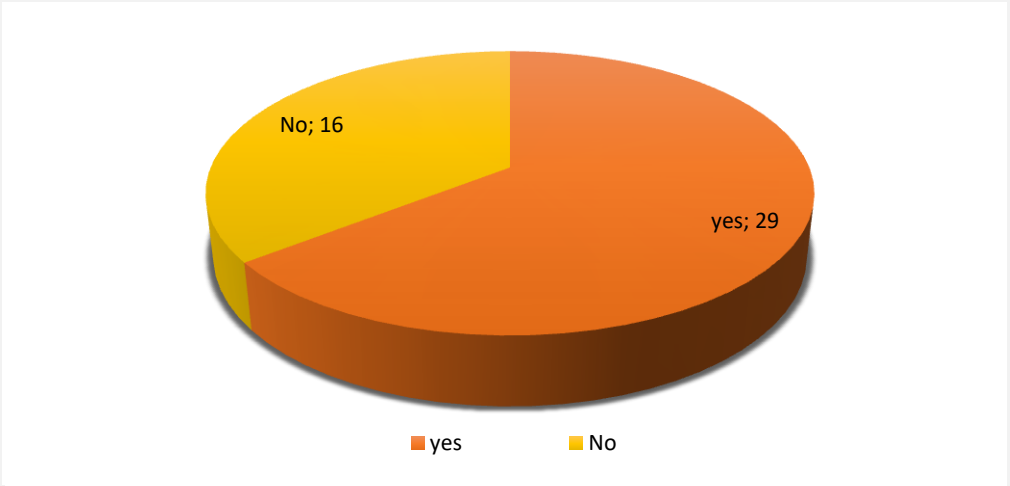


Figure 11 : Numbers of osteotomy operation

3. Traction :

All 45 patients had a traction in post-surgery

4. the practice of bladder neck reconstruction and its age :

22 patients in our series received a reconstruction of the neck bladder (48.8%)

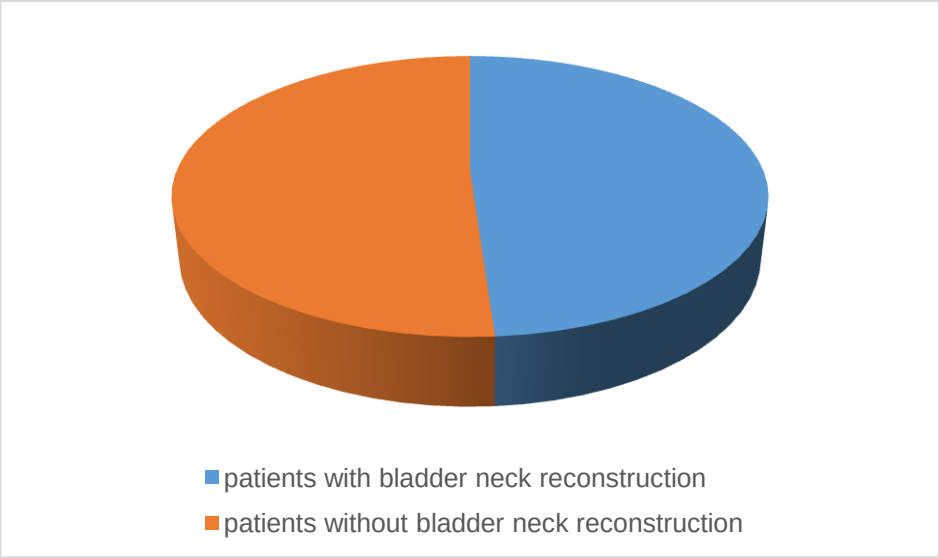


Figure 12 : Patients with bladder neck reconstruction

The age of patients getting a bladder neck reconstruction:

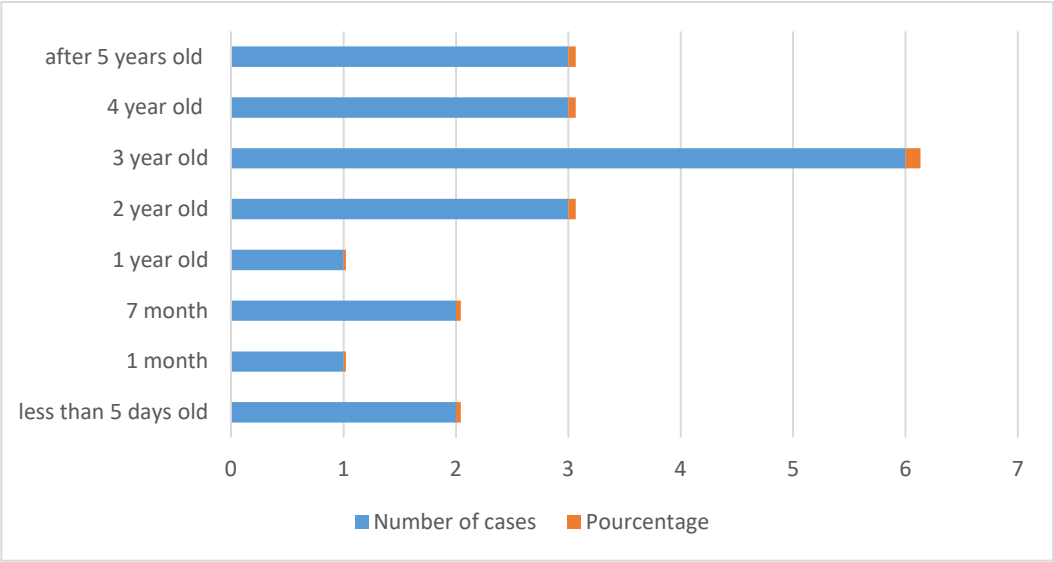


Figure 13 : Age of patients in bladder neck reconstruction

5. Antireflux system :

The reimplantation of both urethras using the method of Cohen was practiced in 25 patients out of 45 (55.55%)

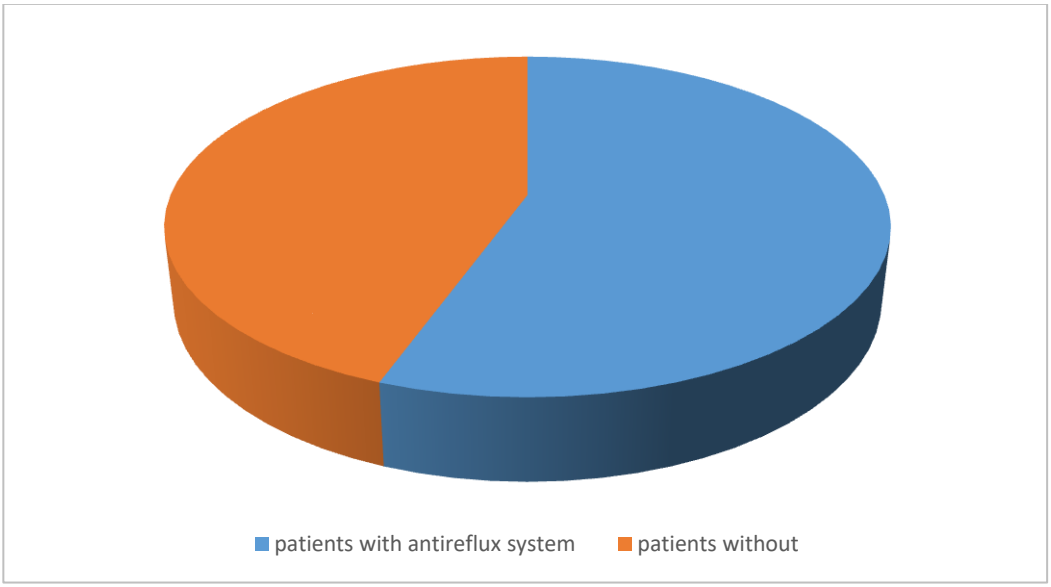


Figure 14 : Patients with antreflux system

IV. Evolution :

1. short term complications :

Within the short-term complications, we registered the following cases :

Table VI : Short term complications

Short term complications	Number of cases	Pourcentage
Urinary leakage	2	4,44%
Urinary tract infection	8	17,78%
Wound dehiscence	5	11,11%
Fall of the operation catheter	2	4,44%
Fistule	1	2,22%
Necrosis of the penis gland	1	2,22%
Infection of the operation site	5	11,11%
Anemia	2	4,44%
Hemorragic choc	1	2,22%
Demise	2	4,44%
Dermatologic reaction	1	2,22%

2. Long-term complications :

List of long-term complications with the associated number of cases and percentages shows:

Table VII : long term complications

Long term complications	Number of cases	Pourcentage
Osteotomy desunity	8	17,78%
Recurrent urinary infection	3	6,67%
Urinary incontinence	2	4,44%
Low bladder capacity	9	20%
Hydroureteral nephrosis	7	15.5%

DISCUSSION

I. Introduction :

Bladder exstrophy is one of the most challenging conditions to manage by pediatric surgeon/pediatric urologists. Not only does this disorder comes with a physical,functional and sexual burden for the patient, but it also impacts the family in several social and psychological aspects.the complexity of the operative procedures that patient undergo makes it challenging to achieve an atomically, functionally and cosmetically satisfactory results.

Generations of surgeons have continually embraced the challenge of treating bladder exstrophy and have made significant progress in pursuing successful outcomes. However, finding a definitive cure for this condition remains elusive. Studying rare conditions like bladder exstrophy presents unique challenges since individual medical institutions seldom encounter a sufficient number of cases to draw useful evidence-based conclusions.

II. Epidemiology :

The prevalence of BEEC is 1 per 10,000 births, ranging from 1 per 30,000 for bladder exstrophy to 1 per 200,000, and an overall greater proportion of males are affected.

No gene defect has been attributed to BEEC, and associated chromosomal aberrations or genetic syndromes have only rarely been reported.

No single teratogenic agent or environmental factor has been identified that could have a dominant role in the expression of BEEC.

III. General Recall :

1. History :

Bladder exstrophy (BE) was initially documented by Schenk von Grafenberg in 1597. Although it was accurately diagnosed by Mowat in 1747, the focus at that time was primarily on managing incontinence. It wasn't until 1853 that a surgeon named Richard attempted the first operation to close the exstrophy by creating an anastomosis between the bladder and the sigmoid colon. Unfortunately, this pioneering surgical procedure resulted in a severe post-surgery complication, leading to peritonitis and ultimately, the patient's demise.

The concept of aligning all anatomical structures along the midline was initially proposed by Trendelenburg in 1892. He accomplished this by separating the sacroiliac joints to bring the pubis together. Later, this concept of "closing the open book" was reexamined by Schultz, and Schawartzmann, conducted iliac osteotomies to achieve the same goal.

In the early 20th century, several surgical approaches were attempted to address bladder exstrophy, a congenital condition where the bladder is exposed. Young reported a successful bladder closure in 1942, but most surgeons continued to favor cystectomy and urinary diversion until around 1950. Over time, modifications were made to these surgical techniques, such as incorporating the prostatic urethra and bladder neck and re-implanting the ureters. However, achieving urinary continence remained a challenge. In 1960, it was suggested that iliac osteotomies and bladder closure should be performed together. For newborns, early closure was recommended, with the use of osteotomies in most cases after 48 hours postpartum to facilitate tension-free bladder neck closure.

Staged reconstruction became recognized as a necessary approach in early cases. Repairs for hernias will be required later in life for almost all male children.

Other procedures for epispadias repair are generally necessary. Advancements in genital reconstruction techniques have led to better results in both cosmetic appearance and sexual function, particularly in males.

2. Bladder anatomy :

The bladder plays a dual role as a reservoir and an active excretory organ for urine. Urine, originating from the kidneys, flows through the ureters and enters the bladder via the ureterovesical junction.

As the bladder accumulates urine, sensory nerves transmit signals to the central nervous system. These signals, in turn, activate both somatic and autonomic nerves, orchestrating the controlled release of urine. This regulation involves the stimulation of the detrusor (bladder) muscle, coupled with the simultaneous relaxation of the internal and external urethral sphincters.

- **Bladder position for children :**

  Abdominopelvic position

  - **for women** :

  It's placed in front of the uterus and the vagina, right above the pelvic floor.

  - **for men :**

  It lied on the prostate that separates it from the pelvic floor. located below the seminal vesicles and in front of the rectum

- **A. Shape of the bladder :**

When the bladder is empty, it has a roughly triangular shape. Flattened from top to bottom and front to back, it can be described as having three faces : superior,Anteroinferior and Posteroinferior

The base has two parts : one obliquely from bottom to top and from front to back, it is more vertical and corresponds to the seminal vesicles and the deferential ampullae in men, and to the vagina and the uterus in women. It also has three borders : a posterior border between the upper face and the posteroinferior face, and two lateral borders.

Additionally, there are three angles : An anterior angle that continues upwards with the urachus. Two lateral angles, right and left.

When the bladder is full, it becomes globular and forms an oval with a large postero-inferior end. The lateral borders disappear and become faces. This distension primarily occurs at the expense of its upper face. The base, on the other hand, remains the same

3. Embryology :

The embryological development of the bladder is a complex process that begins with the formation of the cloaca in early fetal development. Around the 5th week of gestation, the cloaca divides into the hindgut, giving rise to the rectum, and the urogenital sinus, which forms the majority of the bladder. The bladder's distinctive triangular region, called the trigone, is formed from the distal parts of the Wolffian ducts and transitions from mesodermal to endodermal tissue. The allantois, which connects the bladder to the umbilicus, eventually regresses to form the median umbilical ligament. Understanding these developmental stages provides insights into potential congenital conditions affecting the bladder.

4. Histology :

The microscopic structure of the urinary bladder wall organizes into the following layers from the inside out :

- Lining epithelium
- Lamina propria
- Muscularis propria
- Serosa/Adventitia

Lining epithelium : The urinary bladder lining is a specialized stratified epithelium, the urothelium. The urothelium is exclusively in urinary structures such as the ureter, urinary bladder, and proximal urethra

Lamina Propria : is the suburothelial layer separating the urothelium and underlying muscularis propria (detrusor muscle). A layer of basement membrane separates the overlying urothelium from the lamina propria. This layer is a heterogenous network of structural proteins and cells, composed of an extracellular matrix with elastic fibers, capillaries, lymphatics, immune cells, afferent and efferent nerve endings, fibroblasts, myofibroblasts, adipocytes, interstitial cells of Cajal or telocytes, an indistinct smooth muscle cell, and the muscularis mucosae

Muscularis propria, also known as the detrusor muscle, consists of three sublayers : inner longitudinal, middle circular, and outer longitudinal. These sublayers are well-defined around the neck of the urinary bladder but are randomly aligned with the rest of the bladder wall. The bladder's body has a higher smooth muscle content than the trigone, reflecting a well-developed network of myofibroblasts of lamina propria and muscularis mucosae in the body.

Serosa is a thin connective tissue layer that covers the bladder dome and is continuous with the peritoneal layer of the abdominal wall. It also contains blood vessels of various sizes.

Adventitia is a loose connective tissue layer that serves as the bladder's outer layer in areas of the bladder where there is no serosa.

5. Etiopathogeny :

The cause of bladder exstrophy is not known. The problem appears approximately between the fourth and tenth week of pregnancy, when organs, various tissues and muscles begin to form layers where they divide and where they fold back.

Bladder exstrophy does not seem to be hereditary and does not appear depending on what the mother may or may not have done during pregnancy.

This Disorders is associated frequently with :

- Epispadias
- Vesicoureteral reflux

- Diastasis
- Low bladder capacity
- Missing bladder neck and sphincter

IV. Diagnostic :

1. Clinical :

At birth, it is confirmed by a distinct appearance of the lower abdomen, which shows a reddened area on the posterior surface of the bladder that protrudes forward when the child cries. Urine continuously exits the body through visible ureteral openings on the bladder plate, as there is no bladder reservoir.

2. Prenatal ultrasound :

This condition is strongly suspected during prenatal ultrasound due to the permanent inability to visualize the bladder

3. Results of renal ultrasound :

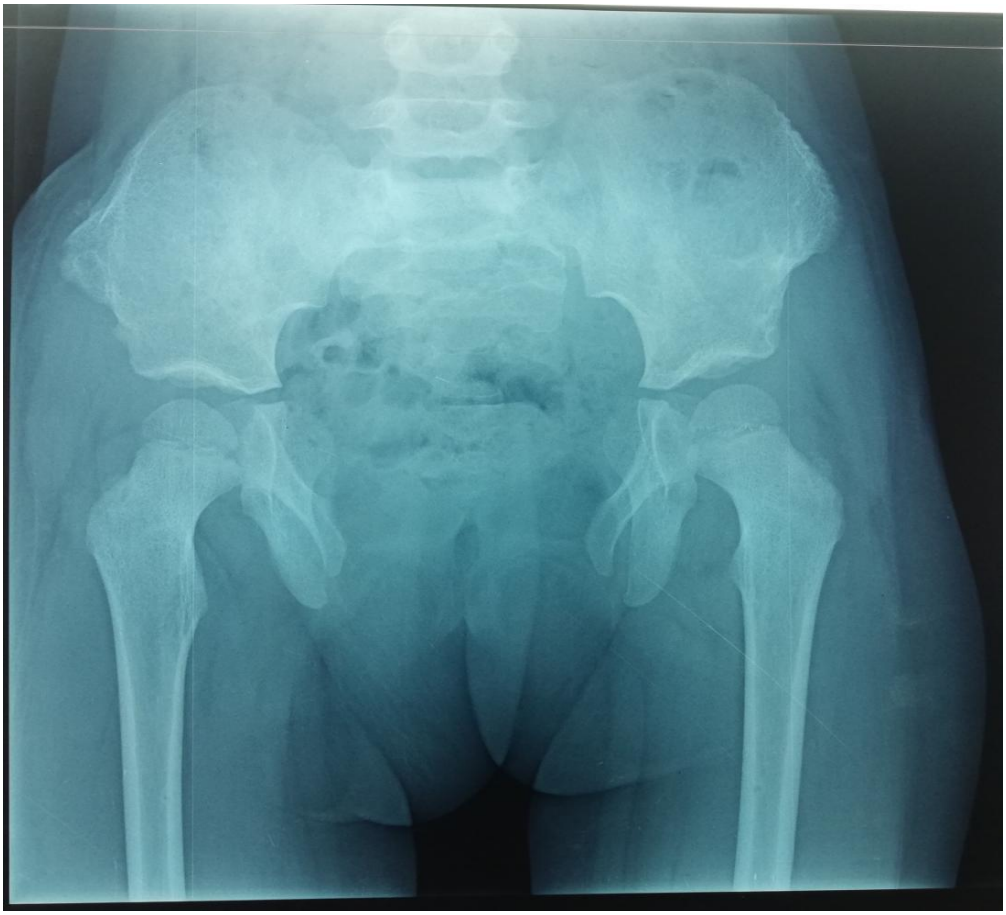
Ultrasound examination of the urinary system enables a comprehensive evaluation of both the upper and lower urinary tracts.

This diagnostic approach allows for a thorough assessment of the renal parenchyma and the detection of any signs indicating urinary stasis.

In the case of the pelvis, ultrasound imaging provides a clear view of the bladder and can detect any potential dilations in the lower ureters. This information is valuable for diagnosing and monitoring urinary conditions and related issues.

4. Hip X-ray :

It shows the enlargement of the pubic bone known as **DIASTASIS**



DIASTASIS

Figure 15 : Hip Xray showing a large diastasis

- **Biology :**
  - **ECBU** : Shows any possible urinary tract infection
  - **NFS :** To evaluate the degree of anemia.

V. Surgical management :

The treatment of bladder exstrophy typically involves a multidisciplinary team of medical professionals, including pediatric urologists, pediatric surgeons, nurses, and physical therapists. This collaborative approach ensures that patients receive comprehensive care that addresses not only the surgical aspects but also the psychosocial and rehabilitative components of treatment.

Modern staged repair (MSRE) is conducted in several stages, typically beginning in early infancy and extending into childhood. The specific procedures may vary from one institution to another, but the overall objectives remain consistent :

- ✓ **Stage 1** : Initial Closure The first stage of surgery typically takes place within the first few days to weeks of life. The primary goal is to close the exposed bladder and create a functional bladder neck. The surgical team carefully repositions the bladder back into the pelvis and repairs the abdominal wall, which includes osteotomies to improve pelvic support.
- ✓ **Stage 2** : Bladder Neck Reconstruction is done by performing the radical soft tissue mobilization (RSTM) or by Kelly procedure which is considered so far most consequent concept of the classical bladder neck reconstruction(27). The unique aspect of this technique is the dissection especially of the pelvis and the corpora cavernosa from the ischiopubic rami including the periosteum with the attachments of the voluntary and unvoluntary sphincter muscles and the pudendal vessels and nerves(27)

An antireflux plasty is always conducted with the bladder neck reconstruction (28) using the method of Cohen

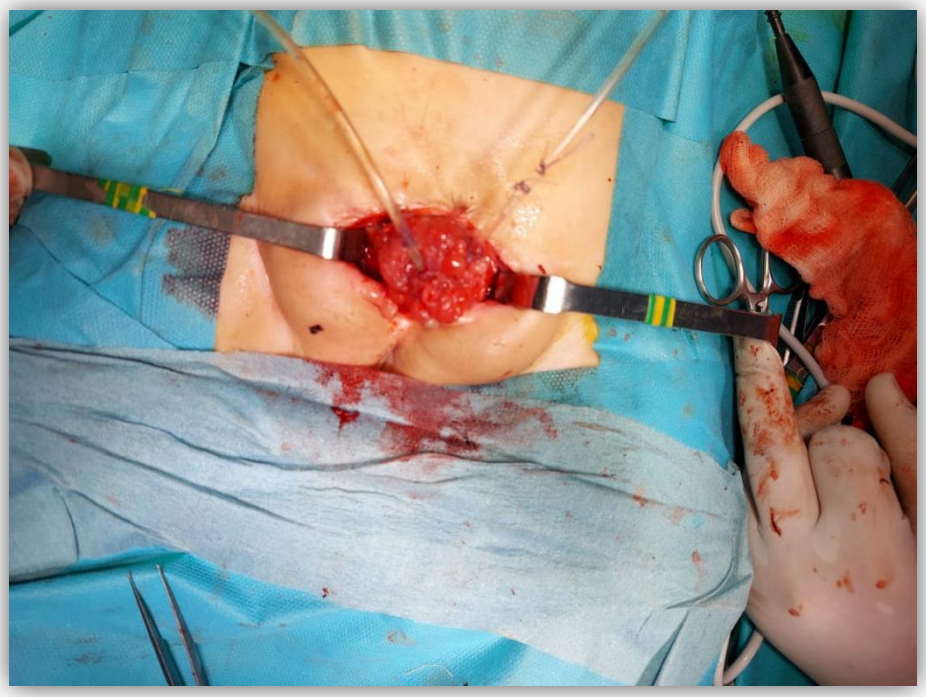
- ✓ **Stage 3:** Pelvic Osteotomies Pelvic bone osteotomies may be performed during the second stage or as a separate third stage to further enhance pelvic support. This helps ensure that the reconstructed bladder and urinary tract remain properly positioned.

- ✓ **Stage 4 :** Epispadias Repair is typically repaired in a later stage of the surgical process.
- ✓ **Stage 5 :** Final Stages The final stages of reconstruction, which may vary depending on the individual patient's needs, aim to fine-tune the urinary continence and address any complications or residual issues.

Complete primary repair of bladder exstrophy (CPRE) entails a careful and systematic approach to correct the anatomical deformities associated with this condition.

The following key steps are included in the procedure :

- ➢ **Bladder Closure:** it starts with dissecting and mobilizing the exposed bladder mucosa and closing it in the midline to restore its normal shape and integrity. Emphasis is placed on achieving a secure, watertight closure to prevent both leakage and urinary complications.
- ➢ **Pelvic Osteotomy :** To optimize pelvic anatomy in some cases, a pelvic osteotomy may be performed to achieving proper alignment of the pelvic bones and facilitating a more natural bladder anatomy
- ➢ **Epispadias Repair :** when found, epispadias is corrected during the same time line. With reconstructing the urethra, and the meatus is repositioned to its anatomically normal location.
- ➢ **Abdominal Wall Closure:** To provide adequate coverage and protection to the reconstructed bladder, the abdominal wall defect is closed. And to avoid any complications such as herniation, a tension-free closure is necessary.
- ➢ **Umbilical Reconstruction:** When bladder exstrophy affects the umbilical region, reconstructive surgery is undertaken to improve the aesthetic result.



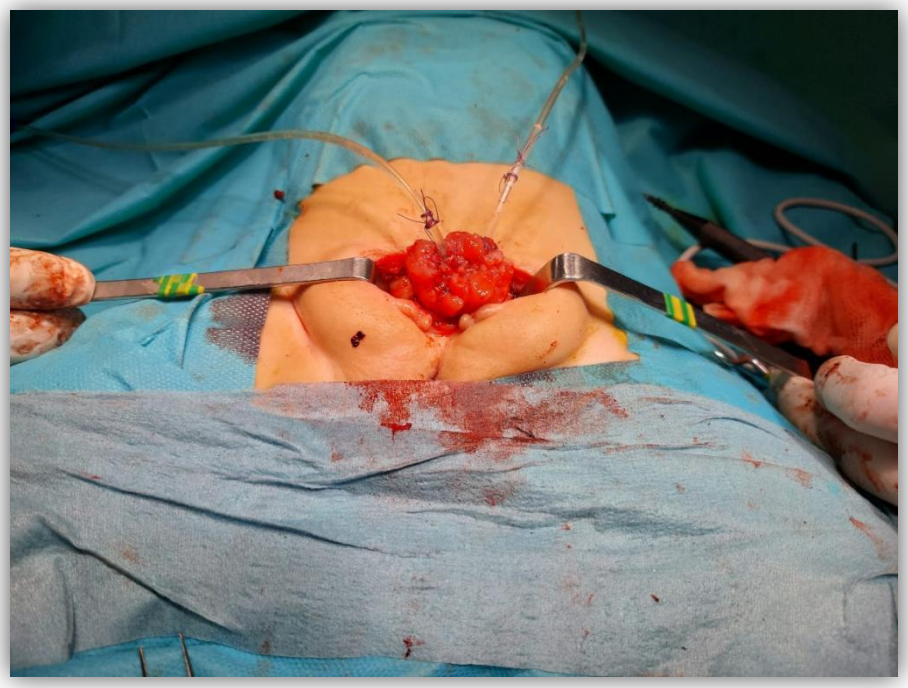


Figure 16 : Actual pictures of a bladder exstrophy operation in the pediatric OR :

DISCUSSING OUR RESULTS

I. Epidemiology :

1. Frequency :

Between January2012 and May 2023, 45 cases were related to patients with bladder exstrophy. The annual prevalence of bladder exstrophy was estimated at 4 cases per year. It is worth noting that this annual prevalence of 4 cases is higher than the results found in other studies. For instance, Diarra [1] in Mali found a prevalence of 1.5 cases per year, while Sanni B [2] in cote d'Ivoire reported a prevalence of 2.1 cases per year. This suggests that the prevalence of bladder exstrophy in this population is relatively higher compared to other regions or patient groups studied by Diarra and Sanni B.

2. Gender :

In our study, we observe a clear male predominance of 64% with a sex ratio of 2 : 1. comparing it to the series conducted by BELKACEM and colleagues (3), there was a male predominance with a sex ratio of 1.58, while the study of FANDJEU I.C [4] and B SANNI [2] found a female predominance

3. Consanguity :

In our study parents consaunguity was found with the rate of 24.5%,while in a study done by Mohamed BEN HILAL in 2018 (5) shows a percentage of 13.6% for bladder exstrophy reported cases.

A case study by M. Moussa SISSOKO (6)shows only 14,3% of consanguity rate reported in 2021 which is significantly lower rate than our study

4. Region :

In our study, Marrakech-Safi came in the first position with 23 cases making up 51% of the cases, followed by the Sous-Massa and Laayoune ethnic groups. The predominance of the Marrakech Safi region can be explained by its proximity to hospital. This proximity likely contributes to the higher number of cases from Marrakech compared to other regions, as it may be more accessible for medical care and diagnosis.

5. Parity :

The effect of parity was studied in 2011 (7) showing a higher rate of registered cases in the 2nd parity with 24.4%, and in the study of G. Reinfeldt Engberg (13),it also showed a higher rate of BE registered for mothers with 2nd parity with percentage of 40.8%,now comparing this percentage to our study where we find a results of 40% in our series, where we conclude that our results are similar and that the parity could be stated as a risk for BE

6. Similar case in siblings :

Our study did not uncover any similar cases in siblings. In contrast, however Ives et al (8) estimated the recurrence risk to be around 1% in parents who were neither consanguineous nor affected by the condition. In other reports, the recurrence risk was established at 2.3% [9], 0.8% [10], 0.5% [11], and 0.3% [12], respectively.

7. Pregnancy follow up :

In our series,9 mothers were well monitored (20%) while 36 weren't (80%), our results were exactly similar to M. Moussa SISSOKO (6)in his study 28 mothers were not well monitored representing 80% while only 6 patients were well monitored (20%)

8. Use of Substance during pregnancy :

In our series of maternal medical history :

- 2 mothers were diagnosed with diabetes(4%)
- 1 mother with hypertension during pregnancy (2%)
- 1 mother exposed to passive smoking (2%)

While in a study of G. Reinfeldt Engberg (13)in Sweden, there was no significant association between smoking and BE.

The same study also indicated that only 1.7% of mothers had diabetes, and there were no recorded results concerning the relationship between hypertension and BE

9. Maternal age at birth :

In our study, we observed a percentage of 35.5% for mothers aged 36 years old that gave birth to newborn with BE. This finding contrasts with the results of M. Moussa SISSOKO's study, where the majority of mothers fell between the ages of 18 and 35, accounting for 80% of the sample. However, when we consider the study by CSABA SIFFEL, it reveals a significant increase in the prevalence of bladder exstrophy by maternal age group, with the highest prevalence rates observed in the age groups of 35–39 years. Also, the study of G. Reinfeldt Engberg (13) registered a higher case of BE for mothers above the age of 37yo representing a percentage of 85%

These findings from both studies are consistent with our own series of cases, suggesting a relationship between a higher maternal age and an increased rate of bladder exstrophy. This implies that there may be an association between maternal age and the occurrence of bladder exstrophy, with older mothers potentially having a higher risk of giving birth to children with this condition

10. Delivery mode :

In our series, 41 patients, constituting 91.1% of the total, were born via vaginal delivery, while 4 patients (8.9%) were born through a C-section. Our findings closely resemble those of G. Reinfeldt Engberg (13), who reported that 85% of newborns were delivered vaginally, with only 15% delivered via C-section.

II. Clinical :

1. Age of diagnosis :

All of our patients, like M. Moussa SISSOKO (6), were diagnosed at the time of birth. Even though 20 of the mothers received prenatal monitoring, no ultrasound was capable of detecting the malformation during pregnancy. This can be attributed to the limited progress in the field of fetal medicine and prenatal diagnosis in our country.

2. Associated malformations :

In G. Reinfeldt Engberg's study (13), inguinal hernias appeared as the most prevalent associated malformation, accounting for 41% of cases. Similarly, in M. Moussa SISSOKO's study (6), the findings were comparable, with inguinal hernias making up 14.3% of the cases. In our own study, we observed similar results, as we documented 18 cases of inguinal hernia, constituting 40% of the total cases, and the rise in the incidence of inguinal hernia with this malformation is thought to be due to the absence of obliquity in the inguinal canal and pubic diastasis

Penis deformation, predominantly in the form of epispadias, emerged as the second most prevalent malformation in our study. We identified 29 cases which are all the male new borns in our study, accounting for 64.5% of the cases. And an article by S. AHM ED (15) had 4case in between 13 patients constituting 30% When comparing these findings to Diarra and Cheickné's study (Reference 1), they recorded 6 cases of epispadias, representing 21.9% of the cases in their research.

In M. Moussa SISSOKO's research (6), exomphalos was identified as the second most common malformation, following hernias, comprising 8.6% of cases and In CSABA SIFFEl's study (7), exomphalos was observed in 53 cases, constituting 34% of the cases studied. And an article by S. AHM ED (15) had only 1 case in between 13 patients constituting 7%.In contrast, in our study, exomphalos ranked as the third most frequent malformation, accounting for 11% of cases.

In the same study anal defect was observed in 33 cases constituting 21% while in our study we only registered 2 cases with anal imperforation accounting 4.5%

Cryptorchidism was found in 7 cases in the study of G. Reinfeldt Engberg's study (13) accounting for 11%, while we found only 2 cases constituting 4.5%

In Veereshwar Bhatnagar's article (14), they reported 2 cases of disorder of sex development, accounting for 1% of the cases. In our series, we also documented 2 cases of disorder of sex development, but the percentage in our study was higher at 4.5%.

Spinifa bidifa was our least frequented malformation with only one case registered (2.3%) while in the study of In CSABA SIFFEl's study (7) 28 cases were observed constituting 34%

3. Radiography results :

3.1 Hip X-ray :

In an article by S. AHM ED (15), he reported on pubic diastasis ranging from 3 to 9 cm in 13 cases. Among these cases, 5 instances had a diastasis of 4 cm, representing 38.5%. Interestingly, in our study, we also had 5 patients with a diastasis of 5 cm, constituting 11.11%.

3.2 Renal ultrasound :

Renal complications were observed in 8 of our patients, primarily characterized by hydronephrosis, accounting for 17.7% of cases. Our findings closely align with HISHAM M. HAMMOUDA's study (16), which reported 3 cases of hydronephrosis (9%). In Diarra C's study (1), only 1 case of hydronephrosis was identified through patient ultrasound. Conversely, B SANNI [3] discovered 10 cases of bilateral hydronephrosis, constituting 58.82% of their cases. Lastly, STE´ PHANE BOLDUC's article (17) noted hydronephrosis in 18 patients, representing 32% of their sample

3.3 Heart ultrasound :

In our study, we observed several heart malformations through heart ultrasound examinations. These included 2 cases of CIA (4.4%), 1 case of CIA and PCA (2.2%), and one case of pulmonary stenosis (2.2%). In total, we identified 8.8 cases of congenital heart malformations. Interestingly, our findings closely parallel those of a study conducted by A.K. Ebert (20), which reported 3 cases of congenital heart defects, representing 7%.

4. Age of first operation :

In our study, 18 of the newborns were operated on before reaching one month of age, making up 40% of the total cases. These results were consistent with S. AHM ED's study (15), which reported that 30.7% of their patients underwent surgery before the age of one month. In the study conducted by M. Moussa SISSOKO (6), it was found that 54.3% of their patients had surgery performed before the age of one month

The situation can be explained by the early diagnosis of bladder exstrophy immediately after birth.

5. Osteotomy :

In Kirstan K. Meldrum's study (19) study out of 194 patients, 93 underwent an osteotomy during the first stage of their treatment, making up 47.9% of the cases. In a separate study by S. Ahmed (15), 8 out of 13 patients underwent an osteotomy, accounting for 61% of the cases. It's worth noting that this percentage closely resembles the findings in our study, where 29 of our patients had an osteotomy, representing 65%.

6. Traction :

In a study conducted by Margarett Shnorhavorian (18), 13 out of 39 patients, accounting for 13.9%, were immobilized using traction. Meanwhile, in Kirstan K. Meldrum's study (19), 61 out of 194 patients were stabilized with traction in the post-surgery phase, representing 31.5% of the cases. In contrast, in our study, all patients received traction after the initial operation, making up 100% of the cases.

When comparing these three sets of results, it becomes evident that our utilization of traction is significantly higher than that observed in both of the studies

7. Bladder Neck reconstruction :

In John P. Gearhart's study (20), they reported that 30 males and 3 females who had previously undergone complete primary repair of bladder exstrophy were referred for further evaluation. Among them, 26 individuals underwent bladder neck reconstruction, constituting 78.8% of the cases. In Veereshwar Bhatnagar's research (14), they found that bladder neck reconstruction was performed in 132 out of 248 cases, accounting for 53% of the total. In our own study, we observed that 19 patients within our series received bladder neck reconstruction, representing 42.2% of the cases. When comparing our results to the findings from these previous articles, it becomes evident that our rate of bladder neck reconstruction is comparatively lower.

8. Antireflux system :

In the study of Leclair MD(26) 27 patients were operated in a staged repair method for bladder exstrophy repair while Antireflux procedure was performed in 22 cases(81.5%) while in our study all of our patients had an antireflux procedure there for we find a higher rate

9. Evolution :

9.1. Short-term complications :

- In our study, the most common complication was urinary tract infection, accounting for 8 cases or 17.78%. In Anthony J's study (22), they reported 12 cases of urinary infection, equivalent to 12%. A comparison of these results reveals a higher percentage of urinary infections in our study.
- The second most frequent complication was wound infection and wound dehiscence, with 5 cases each, representing 11.11% each. In contrast, Anthony J's study (22) reported 6 cases of complete dehiscence of repair out of 194 cases, amounting to 3%. which significantly lower than our results, in the study of Moussa SISSOKO (6) he reported 10 cases of dehiscence accounting for 28.6%and in the study of Ossamah Alsowayan (24)Dehiscence of the primary closure was observed in five of 16 (31.3%) patients
- In all these results we observe higher rates comparing it to our study mainly in the patients who didn’t receive an osteotomy
- In Moussa Sissoko's study (6), he documented three cases of death resulting from septic shock. Remarkably, our study closely mirrors his findings, as we also observed two cases of death due to a similar cause

9.2. Long-term complication :

- In the article of Ossamah Alsowayan (24) 14 patients out of 18 (87.5%) experienced incontinence by the age of five,in our series observed incontinence only 2 cases out of 45 (4.5%),indicating significantly lower rates compared to Alsowayan's study.

- While Alsowayan's study reported 6 patients (37%) with low bladder capacity in cystometries, our research identified 9 out of 45 patients (20%) with this condition. This suggests that our rates of low bladder capacity are lower than those found in Alsowayan's study.
- In Małgorzata Baka-Ostrowska's study(25), 28% of children showed upper urinary tract dilation. In our research, we found hydroureteronephrosis in 15.5% of cases, demonstrating lower rates compared to Baka-Ostrowska's findings.
- Recurrent urinary tract infection (UTI) occurs in approximately 11.5% of the patients according to Dr. V. Bhatnagar's study in India(29),while in our study we found 3 cases patients which such complication accounting for 6.6%,and compared to the Dr.bhatnagar's result,it is slightly lower

10. Prognosis :

10.1. Continence results and long-term complications after functional reconstruction :

The abundance of publications on **EEC** (bladder exstrophy) is noted, but the available surgical outcome data are predominantly retrospective and derived from single-center or single-surgeon experiences. Woodhouse (31) noted that bladder function in **EEC** is unstable, with a potential for late failure. Current expectations indicate about 80% (32)continence rates in childhood, but spontaneous voiding is not guaranteed. Among 100 one-stage functional reconstructed EEC patients, primary reconstruction yielded 72.3% complete continence, dropping to 41.5%(33) after redo bladder neck plasty over an 11.1-year(33) observation period. Similar outcomes are reported in high-volume EEC centers. Primary closure failure poses challenges for planned bladder neck reconstruction, with decreasing success rates in subsequent attempts. Complications such as infections, epididymitis, and residual urine necessitate meticulous long-term care.

10.2. Reconstruction failure after functional reconstruction :

Reconstruction failure in bladder exstrophy is clinically assessed using endoscopy and urodynamics. Therapeutic recommendations consider the individual's medical history. Impaired bladder storage can be addressed with bowel augmentation, preferably using the ileum or sigma. Options for bladder emptying include urethral catheterization or a catheterizable channel following the Mitrofanoff principle. Low bladder neck resistance may be managed with injectable materials, offering a minimally invasive approach for continence improvement. Durable success often requires multiple injections(34). Bladder neck closure with a catheterizable channel is a definitive solution, relying on patient and parent compliance. In cases of poor bladder development leading to upper tract deterioration, a well-balanced analysis guides the choice between catheterizable pouch or sigma-rectum-pouch urinary diversion, considering factors like age, social background, and lifestyle

10.3. Male EEC patients : fertility and genital outcome :

Modern reconstruction techniques for bladder exstrophy (EEC) aim for acceptable functionality and cosmetics, impacting adult life with congenital genitourinary anomalies. Successful genital rehabilitation is marked by fulfilling sexual lives and marriage. Despite concerns about penile size, approximately 50% of male EEC patients engage in sexual activity. Parental support and a positive attitude play a crucial role in mental well-being. Woodhouse's(31) review found 75% of EEC patients experienced ejaculation, with around 50% able to father children. Long-term fertility results are limited, and consensus on the superiority of primary diversion or functional reconstruction is lacking. Complications of reconstructive surgery can adversely affect male fertility, with reported primary spermatogenesis failure at about 20%(35). Multifactorial factors contribute to impaired fertility. Long-term data suggest that functional bladder neck reconstruction, with anatomically correct placement, enables successful ejaculation in 94.1% of patients(35), emphasizing the importance of an optimal approach to the bladder neck for continence, ejaculation, and fertility.

10.4. Female EEC patients : fertility and genital outcome :

Female EEC patients generally undergo minimal surgery, yielding mostly satisfactory cosmetic outcomes. Normal internal genitalia, largely unaffected by reconstructive bladder surgery, typically result in normal fertility. The lower cervical insertion increases the likelihood of successful pregnancies. Compared to males, female EEC patients, as per Woodhouse, encounter fewer issues with sexuality and sexual intercourse. Among 42 female patients, 34 engaged in sexual intercourse, with 12 not requiring vaginoplasty. Thirty-two were married or in stable partnerships, resulting in 22 pregnancies and 19 healthy babies; only three pregnancies were terminated for non-EEC-related therapeutic reasons (36).

10.5. Psychosocial and psychosexual outcome in both sexes :

Psychosocial and psychosexual development data in EEC primarily focus on well-adjusted adults post-puberty. Standard questionnaires indicate normal quality of life, high social adaptation, good academic performance, and educational standards. Many adult EEC patients lead ordinary lives with marriage, sexual relationships, family, children, and professional success.

Some express a desire to erase challenging memories and experience loneliness, particularly during puberty. Health status is often linked to continence. Approximately 25% report impairment in daily life and self-esteem, with efforts to conceal the anomaly(37). Openness, regular upbringing, sufficient information, and supportive parental attitudes are vital coping strategies. Predictors for mental health include parental warmth, urinary continence, and genital appearance. Reports vary on psychiatric diagnoses, with some noting internalized conflicts, anxiety, sadness, depression, low self-esteem, poor body concept, isolation, and withdrawal, while others deny psychopathology in relation to EEC. Attaining continence later leads to externalized struggles with low adaptive behavior scores. Genitourinary malformations may create vulnerabilities to psychosexual dysfunction due to prolonged incontinence, residual genital defects, and postsurgical appearance.

10.6. Risk of malignancy in the exstrophic bladder :

At birth, hamartomatous polyps are present on the exstrophic bladder surface in approximately 50% of cases(38), interpreted as reactive, potentially pre-malignant changes. Early closure of the bladder template within the first few hours of life is widely recommended to mitigate these risks. Despite this, direct proof linking bladder cancer development to polyps or coexistent glandular metaplasia is lacking(38).

Operative interventions on the bladder have led to frequent findings of epithelial damage, including glandular cystitis or intestinal metaplasia within the EEC. The natural history of this intestinal metaplasia remains unclear and cannot be ruled out as a significant risk factor for adenocarcinoma or other urothelial malignancies in long-term follow-up. Reports indicate occurrences of adenocarcinomas and squamous cell carcinomas in unreconstructed, environment-exposed exstrophic bladders. Surprisingly, neoplasia has been detected in the exstrophic bladder remnant even after early cystectomy. The estimated risk for bladder carcinoma in the EEC population is reported to be 700 times higher than the age-matched general population (39).

11. Recommendations :

In order to improve the prognosis of bladder esxtrophy in our context, it is necessary :

- Follow regularly the pregnancies up with at least 3 obstetrical ultrasounds and search for suggestive sonographic signs of the diagnosis.
- Raise awarness among health care professionals about the need to include abdominal and genital exam as part of the routine examination of all newborns in the delivery room.
- Collaboration with an interdisciplinary team of specialists is critical for comprehensive management.

- The neonatologist or pediatrician assumes a pivotal role in the immediate post-birth management, overseeing the care of the exposed bladder plate and surrounding skin. Employing a saran wrap or plastic wrap not only mitigates trauma and bleeding but also facilitates the surgical closure of the bladder, preventing the formation of polyps.
- Timely consultation with a nephrologist is essential due to anticipated deterioration in upper tract function post-bladder closure, emphasizing the value of early engagement with a nephrologist.
- Nurses form an integral part of the interprofessional group, contributing significantly to patient and parent education on clean intermittent catheterization (CIC) and ensuring compliance.
- Pharmacists are crucial in verifying the correct formulation and doses of anticholinergic medications
- Promote urologists and psychiatrists to address psychosexual issues during transitional care to elevate the chances of a normal life after puberty
- Precise planning and ongoing discussions within the interprofessional team are recommended to minimize morbidity and enhance patient outcomes

CONCLUSION

In summary, bladder exstrophy poses a complex challenge within the field of pediatric and reconstructive urology, requiring a thorough and collaborative approach for effective management.

The classic manifestation of this condition, characterized by a profound multi-system malformation, necessitates careful consideration and multidisciplinary strategies to achieve successful surgical closure outcomes.

Recent advancements in the management of bladder exstrophy signify a progressive era in medical science. Prenatal diagnosis, strategic operative timing, and innovative techniques such as pelvic osteotomy with pelvic and extremity immobilization showcase the continuous efforts to enhance the quality of life for individuals grappling with this condition.

However, the journey extends beyond surgical closure, as long-term challenges persist in various aspects of patients' lives, encompassing issues like urinary continence, cosmesis, sexual function, and fertility. Tackling these multifaceted concerns demands ongoing dedication, research, and collaborative efforts among a spectrum of medical professionals, including pediatric and reconstructive urologists, neonatologists, pediatricians, nurses, pharmacists, nephrologists, urologists, and psychiatrists.

Navigating the intricacies of bladder exstrophy underscores that the future lies in the hands of the next generation of medical professionals. Their commitment to refining surgical techniques, exploring innovative therapies, and deepening our understanding of the psychosocial dimensions of this condition holds the key to improved outcomes and an elevated quality of life for those affected.

In essence, the path with bladder exstrophy transcends the confines of the operating room; it involves a continuum of care necessitating sustained collaboration, empathy, and an unwavering pursuit of knowledge. As we endeavor to unravel the complexities of this condition, our collective endeavors offer the potential for positive change and inspire hope for continued progress in pediatric and reconstructive urology.

ANNEXES

Operating sheet

- **Name :**
- **Gender :** male ☐ female ☐
- **Inbreeding** : yes ☐ no ☐
- **Maternal historty**
  - Parity :
  - Siblings malformations :
  - Use of progestins :
  - Smoker :
  - Alcoolic :
  - Drugs :
- **Gestational age :**
- **Age of birth :**
- **Methode of birth :**
  - C-Section ☐
  - Viginal delivery ☐
- **Moment of diagnosis**
  - PRENATAL BY AN ULTRA SOUND ☐
  - POSTNATAL ☐

- **Visible anatomy deformations**
  - Displaced pubis bone ☐
  - Hernia ☐
  - Penis deformation ☐
  - Hemi clitoris ☐
  - Testicular ectopia ☐
  - Vaginal orifice (duplicated) ☐
  - Pelvis diastasis ☐
  - Ambiguous genitalia ☐
  - Vagina narrow-deplaced anteriorly ☐
  - Congenital hip dislocation ☐
  - Spinal defect ☐
  - Renal consequences (hyderonephrosis-duplex kidneys) ☐
- **Other associated malformations**
  - Epispadias ☐
  - exomphtalmos ☐
- **Age of first operation :**
- **Type of traitement :**
  - Staged repair method ☐
  - Complete primitf repair ☐

- **Traction and age**

- **Osteotomy and age**

- **Patient follow up :**
  - Short term complications :
  - Long term complications :

ABSTRACT

Abstract

Introduction

Bladder Exstrohpy occurs approximately in 3.3 per 1,00,000 live births, and it has gender predominance in males. It is both a medical and surgical emergency that must be diagnosed at the latest in the delivery room. Its management includes initially the pediatric, pediatric surgeons, urologist, pediatric resuscitator and intensif care. Several surgical techniques have been described to manage bladder exstrophy and to elevate chances of avoiding incontinence in the futur.

Patients and methods :

Our study, which took place in the department of pediatric general surgery of the University Hospital Center Mohamed 6 of Marrakesh, included 45 patients over a period of 12 years from January 2012 to may 2023.

Results :

11 patients had history of parents consaunguity,23 of our patients were mainly from the region of Marrakech-Safi, we identifed 18 mother with second parity of birth, only 9 were well monitered during pregnancy, their medical history showed the use of folic acide and iron in 40 mothers, 2 with diabetes, 1 with hypertension and 1 with histoy of passive smoking, delivery mode was vaginal in 41 patients, Associated malformations rate was 51% ;hernia defect was the most common (40%), the age of new born between 3 days and 1 month was most common for consultation and age of first operation(24%),29 newborns had osteotomy and all patients were stabilized by traction,22 patients in our series received a reconstruction of the neck bladder, The reimplantation of both urethras using the method of Cohen was practiced in 25 patients, Urinary tract infection was most common short term complication (17,78%) and Osteotomy desunity for long term complications(17,78%),mortality rate was 4.5%

Conclusion:

Bladder exstrophy is a complex challenge in pediatric and reconstructive urology, demanding collaboration. Ongoing advancements show progress, yet persistent long-term challenge and complicationssuch as urinary incontinence require dedication and teamwork among medical professionals. The future relies on the commitment of the next generation to refine techniques and advance care, aiming for positive strides in pediatric and reconstructive urology.

Résumé

Introduction :

L'exstrohpie vésicale survient dans 3,3 cas pour 1 00 000 naissances, avec une prédominance masculine. Il s'agit d'une urgence médicale et chirurgicale qui doit être diagnostiquée au plus tard dans la salle d'accouchement. Sa prise en charge inclut d'abord le pédiatre, le chirurgien pédiatre, l'urologue, le réanimateur et les soins intensifs. Plusieurs techniques chirurgicales ont été décrites pour prendre en charge l'exstrophie vésicale et augmenter les chances d'éviter l'incontinence dans le futur.

Patients et méthodes :

Notre étude, qui a eu lieu au service de chirurgie générale infantile du Centre Hospitalier Universitaire Mohamed 6 de Marrakech, a inclus 45 patients sur une période de 12 ans allant de janvier 2012 à mai 2023.

Résultats :

11 patients avaient une notion de consanguinité parentale,23 de nos patients étaient principalement originaires de la région de Marrakech-Safi,nous avons identifié 18 mères avec une deuxième parité,seulement 9 ont été bien suivies pendant la grossesse,avec des antécédents d'utilisation d'acide folique et de fer chez 40 mères, 2 mére diabitiquele, une hypertendu et une avec des antécédents de tabagisme passif,le mode d'accouchement était par voie basse chez 41 patients,le taux de malformations associées était de 51% ; L'âge de nouveau-né entre 3 jours et 1 mois était le plus fréquent pour la consultation et l'âge de la première opération (24%), 29 nouveau-nés ont eu une ostéotomie et tous les patients ont été stabilisés par traction, 22 patients dans notre série ont bénéficié d'une reconstruction du col de la vessie, La réimplantation des deux urètres selon la méthode de Cohen a été pratiquée chez 25 patients.L'infection urinaire était la complication la plus fréquente à court terme (17,78%) et la désunion de l'ostéotomie pour les complications à long terme (17,78%),le taux de mortalité était de 4.5%

Conclusion :

L'exstrophie vésicale est un défi complexe en urologie pédiatrique et reconstructive, qui exige une collaboration. Ces dernières années, on a constaté des progrès remarquables dans le domaine médical., mais le défi persistant à long terme et les complications telles que l'incontinence urinaire exigent un dévouement et un travail d'équipe de la part des professionnels de la santé. L'avenir repose sur l'engagement de la prochaine génération à affiner les techniques et à faire progresser les soins, en visant des avancées positives dans le domaine de l'urologie pédiatrique et reconstructive.

ملخص

مقدمة :

تحدث انقلاب المثانة في 3.3 حالة لكل 100000 ولادة، مع تفوق للذكور. وهي حالة طبية وجراحية عاجلة يجب تشخيصها في أقرب وقت ممكن في غرفة الولادة. تتضمن معالجتها في البداية اللجوء لكل من أطباء الأطفال، جراح الأطفال، أخصائي المسالك البولية، وأخصائي العناية المركزة. وقد وصفت عدة تقنيات جراحية للتعامل مع الإكشاف المثاني وزيادة فرص تجنب السلس البولي في المستقبل.

المرضى والطرق :

شملت دراستنا، التي أجريت في قسم جراحة الأطفال بالمستشفى الجامعي محمد السادس في مراكش، 45 مريضاً على مدى فترة 12 عامًا من يناير 2012 الى مايو 2023.

النتائج :

كان 11 مريضا منحدرين من زواج الأقارب ، وكان 23 من مرضانا من منطقة مراكش-آسفي، وقد تم تحديد 18 أمًا من الأمهات ذوات الحمل الثاني ، وكانت 9 امهات فقط تتمتعن بمتابعة جيدة خلال الحمل، مع وجود تاريخ مرضي لاستخدام حمض الفوليك والحديد لدى 40 أمًا، وكانت هناك أمَين مريضتان بالسكري وأم مصابة بارتفاع ضغط الدم وأخرى لديها سجلات سابقة في التدخين السلبي، وكانت طريقة الولادة طبيعة عند 41 مريضة، وكان معدل التشوهات المصاحبة 51%; وكانت العمر عند الولادة بين 3 أيام وشهر واحد هو الأكثر شيوعًا للمشاورة وكان العمر عند العملية الأولى (24%)، وكان لدي 29 مولودًا عملية تقويم العظم وتم استقرار جميع المرضى من خلال الجريبة، وتمت استعادة 22 مريضًا في سلسلتنا من عنق المثانة، وتمت إعادة زرع الحالبين وفقًا لطريقة كوهين لـ 25 مريضًا. كان العدوى البولية هي أكثر المضاعفات شيوعًا على المدى القصير (17.78%) وفك الجبيرة للمضاعفات على المدى الطويل (17.78%)، وكان معدل الوفيات 4.5٪

استنتاج :

الإكشاف المثاني يمثل تحديًا معقدًا في طب الجراحة التجميلية والترميمية للأطفال، والتي تتطلب التعاون. في السنوات الأخيرة، شهدنا تقدمات ملحوظة في المجال الطبي، ولكن التحدي المستمر على المدى الطويل والمضاعفات مثل السلس البولي يتطلب التفاني والعمل الجماعي من قبل الفريق الطبي. يتوقف المستقبل على التزام الجيل القادم بتنقيح التقنيات وتقدم الرعاية، بهدف تحقيق تقدم إيجابي في مجال الجراحة التجميلية والترميمية للأطفال.

BIBLIOGRAPHIE

1. **Siffel, C., Correa, A., Amar, E., Bakker, M. K., Bermejo-Sánchez, E., Bianca, S., Castilla, E. E., Clementi, M., et al**
"Bladder Exstrophy : An Epidemiologic Study from the International Clearinghouse for Birth Defects Surveillance and Research, and an Overview of the Literature."
American Journal of Medical Genetics Part C : Seminars in Medical Genetics, vol. 157, no. 4, 14 Oct. 2011, pp. 321-332,

2. **Diarra C.**
« Prise en charge de l'extrophie vésicale au service d'urologie du CHU du Point G»
[th med]. Bamako : Faculté de Médecine de Pharmacie et d'Odonto-Stomatologie, N°09M139 ;2009.

3. **Bankole Sanni R., Coulibaly Denoulet D., Modibot M.L.**
« Traitement de l'extrophie vésicale au CHU d'Abidjan »
(Treichville) Ann. Urol. 1997 ; 31 (6-7) : 371-374

4. **Belkacem., Kriouile., Outarahout O.**
« Traitement actuel de l'EV à propos de 31cas »
en l'espace de 23ans Médecine du Maghreb 1998 n°72

5. **5. Fandjeu Irene Clarisse.**
« Etude des malformations urogénitales dans le service d'urologie du CHU de Point « G » et de la chirurgie pédiatrique du CHU »
du Gabriel Touré à propos de 104cas Thèse médecine Bamako 2005, M125 : P62

6. **M. Ben Hila**
Etude épidémiologique des uropathies malformatives au service de chirurgie pédiatrique CHU Mohammed VI de Marrakech.
Thèse à l'Université Cadi Ayyad, Faculté de médecine et de pharmacie de Marrakech, 2012.

7. **M. Sissoko**
« Exstrophies Vésicales : A Propos De 35 Cas Dans Le Service De Chirurgie Pédiatrique Du Chu- Gabriel Toure »
Thèse A L'université Des Sciences, Des Techniques Et Des Technologies De Bamako, Faculté De Médecine Et D'odontostomatologie, République Du Mali. 2021

8. **Siffel C, Correa A, Amar E, Bakker Mk, Bermejo-Sánchez E, Bianca S, et al.**
Bladder exstrophy : an epidemiologic study from the International Clearinghouse for Birth Defects Surveillance and Research, and an overview of the literature.
Am J Med Genet C Semin Med Genet. 2011 Nov 15;157C(4) : 321-32. doi : 10.1002/ajmg.c.30316. Epub 2011 Oct 14. PMID : 22002949; PMCID : PMC4512232.

9. **Gearhart Jp, Jeffs Rd**
« Exstrophy - Epispadias complex and bladder anomalies, In Campbell MF, Relik AB Ultrasonographic criteria for the prenatal diagnosis of Cloacal Exstrophy, Journal of Urology»,
Dec 1999, 162(6) Vaughan B, Campbell's Urology, 7th edition, Philadelphia; Pa : W. B. Saunders,1998 : 1939 - 1990.

10. **Messelink EJ, Aronson DC, Knuist M, Heij HA, Vos A.**
«Four cases of bladder exstrophy in two families».
J Med Genet. 1994;31 : 490-492 doi : 10.11 36/jm g.31.6.490.

11. **Boyadjiev Sa, Dodson Jl, Radford Cl, Ashrafi Gh, Beaty Th, Mathews Ri, Broman Kw, Gearhart Jp.**
«Clinical and molecular characterization of the bladder exstrophy-epispadias complex : analysis of 232 families».
BJU Int. 2004 ;94 : 1337-1343. doi : 10.1111/j.1464-410X.2004.05170.x.

12. **Reutter H, Shapiro E, Gruen Jr.**
« Seven new cases of familial isolated bladder exstrophy and epispadias complex (BEEC) and review of the literature».
Am J Med Genet A. 2003;120A : 215-221. doi : 10.1002/ajmg.a.20057.

13. **Shapiro E, Lepor H, Jeffs Rd.**
«The inheritance of the exstrophy-epispadias complex».
J Urol. 1984;132 : 308-310.

14. **Reinfeldt Engberg G, Mantel Ä, Fossum M, Nordenskjöld A.**
Maternal and fetal risk factors for bladder exstrophy : A nationwide Swedish case-control study.
J Pediatr Urol. 2016 Oct;12(5) : 304.e1-304.e7. doi : 10.1016/j.jpurol.2016.05.035. Epub 2016 Jul 15. PMID : 27499280.

15. **Bhatnagar V.**
Bladder exstrophy : An overview of the surgical management.
J Indian Assoc Pediatr Surg. 2011 Jul;16(3) : 81-7. doi : 10.4103/0971-9261.83483. PMID : 21897565; PMCID : PMC3160059.

16. **Ahmed S, Fonda-Neel K, Borghol M.**
«Continence after bladder neck reconstruction in patients with bladder exstrophy and pubic diastasis».
Br J Urol 1996;77 : 896-9. 14. Yazici M, Kandemir U, Atilla

17. **Hammouda Hm, Kotb H.**
Complete primary repair of bladder exstrophy : initial experience with 33 cases.
J Urol. 2004 Oct;172(4 Pt 1) : 1441-4; discussion 1444. doi : 10.1097/01.ju.0000139190.77295.cb. PMID : 15371864.

18. **Bolduc S, Capolicchio G, Upadhyay J, Bagli Dj, Khoury Ae, Mclorie Ga.**
The fate of the upper urinary tract in exstrophy.
J Urol. 2002 Dec;168(6) : 2579-82; discussion 2582. doi : 10.1016/S0022-5347(05)64220-6. PMID : 12441988.

19. **Shnorhavorian M, Song K, Zamilpa I, Wiater B, Mitchell Mm, Grady Rw.**
Spica casting compared to Bryant's traction after complete primary repair of exstrophy : safe and effective in a longitudinal cohort study.
J Urol. 2010 Aug;184(2) : 669-73. doi : 10.1016/j.juro.2010.03.057. Epub 2010 Jun 19. PMID : 20639033.

20. **Meldrum Kk, Baird Ad, Gearhart Jp.**
Pelvic and extremity immobilization after bladder exstrophy closure : complications and impact on success. Urology.
2003 Dec;62(6) : 1109-13. doi : 10.1016/s0090-4295(03)00791-x. PMID : 14665365.

21. **Gearhart Jp, Baird A, Nelson Cp.**
Results of bladder neck reconstruction after newborn complete primary repair of exstrophy.
J Urol. 2007 Oct;178(4 Pt 2) : 1619-22; discussion 1622. doi : 10.1016/j.juro.2007.03.175. Epub 2007 Aug 16. PMID : 17707038.

22. **Ebert Ak, Zwink N, Jenetzky E, Stein R, Boemers Tm, Lacher M, et al.**
Association Between Exstrophy-epispadias Complex And Congenital Anomalies :
A German Multicenter Study. Urology. 2019 Jan;123 : 210-220. doi : 10.1016/j.urology.2018.05.039. Epub 2018 Aug 1. PMID : 30076940.

23. **Schaeffer Aj, Purves Jt, King Ja, Sponseller Pd, Jeffs Rd, Gearhart Jp.**
Complications Of primary closure of classic bladder exstrophy.
J Urol. 2008 Oct;180(4 Suppl) : 1671-4; discussion 1674. doi : 10.1016/j.juro.2008.03.100. Epub 2008 Aug 20. PMID : 18715589.

24. **M. E. Mitchell And D. J. B Agli :**
"Complete penile disassembly for epispadias repair : the mitchell technique,"
Journal of Urology, vol. 155, no. 1, pp. 300-304, 1996.

25. **Alsowayan O, Capolicchio Jp, Jednak R, El-Sherbiny M.**
Long-term functional outcomes after bladder exstrophy repair : A single, low-volume centre experience. Can Urol Assoc J.
2016 Mar-Apr;10(3-4) : E94-8. doi : 10.5489/cuaj.3104. PMID : 27330586; PMCID : PMC4907781.

26. **Baka-Ostrowska M, Kowalczyk K, Felberg K, Wawer Z.**
Complications after primary bladder exstrophy closure - role of pelvic osteotomy. Cent
European J Urol. 2013;66(1) : 104-8. doi : 10.5173/ceju.2013.01.art31. Epub 2013 Apr 26. PMID : 24579005; PMCID : PMC3921855.

27. **Leclair Md, Faraj S, Sultan S, Audry G, Héloury Y, Kelly Jh, Ransley Pg.**
«One-stage combined delayed bladder closure with Kelly radical soft-tissue mobilization in bladder exstrophy : preliminary results».
J Ped Urol (2018) pii : S1477-5131(18)30391-7. doi : 10.1016/j.jpurol.2018.07.013

28. **Kelly Jh.**
«Vesical exstrophy : repair using radical mobilisation of soft tissues».
Pediatr Surg Int (1995) 10 : 298-304.

29. **Ebert Ak, Reutter H, Ludwig M, Rösch Wh.**
«The exstrophy - epispadias complex».
Orphanet J Rare Dis (2009) 4. DOI : 10.1186/1750-1172-4-23

30. **Bhatnagar V. Bladder Exstrophy :**
«An overview of the surgical management».
J Indian Assoc Pediatr Surg. 2011 Jul;16(3) : 81-7

31. **Woodhouse Cr, North Ac, Gearhart Jp**
«Standing the test of time : long-term outcome of reconstruction of the exstrophy bladder».
World J Urol. 2006;24 : 244-249. doi : 10.1007/s00345-006-0053-7.

32. **Gearhart Jp.**
« The bladder exstrophy-epispadias-cloacal exstrophy complex».
In : Gearhart JP, Ring RC, Mouriquand PDE, editor. Pediatric Urology. Chapter 32. Philadelphia : W. B. Saunders Co; 2001. pp. 511-546.

33. **Rösch Wh, Schott G, Scheuering S, Schrott Km.**
«Long-term outcome analysis of the first 100 complete reparis of bladder exstrophy in Erlanger technique».
*BJU. 2001;**87** : 24.*

34. **Burki T, Hamid R, Ransley Pg, Mushtaq I, Duffy Pg.**
«Injectable polydimethylsiloxane for treating incontinence in children with the exstrophy-epispadias complex : long-term result»s.
BJU. 2006;98 : 849-853. doi : 10.1111/j.1464-410X.2006.06378.x.

35. **Ebert Ak, Bals-Pratsch M, Seifert B, Reutter H, Rösch Wh**
«Genital and reproductive function in males after functional reconstruction of the Exstrophy-Epispadias-Complex - long-term results».
*Urology. 2008;**72** : 566-9. doi : 10.1016/j.urology.2007.11.166.*

36. **Woodhouse Crj, Hinsch R.**
«The anatomy and reconstruction of the adult female genitalia in classical exstrophy».
*BJU. 1997;**79** : 618-622. doi : 10.1046/j.1464-410X.1997.00148.x.*

37. **Ebert A, Scheuering S, Schott G, Rösch Wh**
« Psychosocial and psychosexual development in childhood and adolescence within the exstrophy-epispadias complex».
J Urol. 2005;174 : 1094-1098. doi : 10.1097/01.ju.0000169171.97538.ed

38. **Novack Te, Lakshmanan Y, Frimberger D, Epstein Ji, Gearhart Jp**
«Polyps in the exstrophic bladder. A cause for concern?»
J Urol. 2005;174 : 1522-1526. doi : 10.1097/01.ju.0000179240.25781.1b.

39. **Smeulders N, Woodhouse Cr.**
«Neoplasia in adult exstrophy patients.»
BJU. 2001;87 : 623-628. doi : 10.1046/j.1464-410x.2001.02136.x.

قسم الطبيب

أقْسِم بالله العَظِيم

أن أراقبَ الله في مِهْنَتِي.

وأن أصُونَ حياة الإنسان في كآفّةِ أطوَارهَا في كل الظروف والأحَوال باذلة وسْعِي في إنقاذها مِن الهَلاكِ والمرَضِ والألَم والقَلَق.

وأن أحفَظَ لِلنَاسِ كرَامَتهُم، وأسْتر عَوْرَتهُم، وأكتمَ سِرَّهُمْ.

وأن أكونَ عَلى الدوَام من وسائِل رحمة الله، باذلة رِعَايَتي الطبية للقريب والبعيد،للصالح والطالح، والصديق والعدو.

وأن أثابر على طلب العلم، وأسَخِّرَه لِنَفْعِ الإنْسَان لا لأذَاه.

وأن أُوَقّرَ مَن عَلَّمَني، وأُعَلّمَ مَن يَصْغرَني، وأكون أختاً لِكُلّ زَميل في المِهنَةِ الطِّبّيَة مُتعَاونِين عَلى البرّ والتقوى.

وأن تكون حياتي مِصْدَاق إيمَاني في سِرّي وَعَلانيَتي، نَقِيَّة مِمّا يُشينهَا تجَاهَ الله وَرَسُولِهِ وَالمؤمِنين.

والله على ما أقول شهيد

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سنة 2024 **أطروحة رقم 048**

تدبير الإكشاف المثاني

الأطروحة

قدمت ونوقشت علانية يوم 2024/02/12

من طرف

السيدة أميمة غزار

المزدادة في 24 مارس 1998 بسلطنة عمان

لنيل شهادة الدكتوراه في الطب

الكلمات الأساسية :

إكشاف مثاني - علاج جراحي - مضاعفات قصيرة وطويلة الأجل

اللجنة

السيد	س. يونس أستاذ في طب التخدير والإنعاش	الرئيس
السيد	م. أولاد صياد أستاذ في جراحة الأطفال	المشرف
السيد	ف. ماء العينين أستاذ في طب الأطفال	الحكم