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Research Paper

MULTIVARIATE ANALYSIS OF FACTORS ASSOCIATED WITH ADVERSE OUTCOMES IN UDT CHILDREN BASED ON RETROGRADE LOGISTIC REGRESSION MODEL

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Abstract. In this article, while studying 125 pediatric patients who have not descended testicles, we statistically examine the consequences of undescended testicular surgery in children referred to 17 Shahrivar Hospital in Rasht in the period 1394-1400. Then, while finding the most effective variables, we analyze them regression and arrive at a predictive model based on the adjusted variables in backward LR regression analysis.

Key Words: Undeveloped testis, Orchidopexy, Expolrlation, UDT, Cryptorchidism.
2010 Mathematics Subject Classification: Primary: 13A15; Secondary: 13F30, 13G05.

1. Introduction

Cryptocurrency is the absence of at least one testicle in the escort. It is one of the most common birth defects that affects the male genital area. About 3% of preterm infants and 30% of preterm infants are born with one or two undescended testicles (UDTs). About 80% of unexplained testicular cases resolve in the first three months of life, which

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means that the actual incidence is about one percent. Undetected testicles may occur on both sides, but often occur on the right side. The testicle may be present anywhere along the descending path; Retroperitoneal region of the abdomen, inguinal ring, inguinal canal or in the ectopic pathway from the descending path, hypoplastic, dysgenetic, absent or seen unilaterally (Fig.1). The undescended testicle is usually palpable in the inguinal canal. In a small number of patients, the testicle may be in the abdomen or absent at all. Undeveloped testes are associated with decreased fertility (bilateral cases), increased testicular germ cell tumors (overall risk less than one percent), testicular torsion, inguinal hernia, and psychological problems. Without surgical correction, an undeveloped testicle may shrink during the first three months of life. To reduce the risk of undescended testicles, they may be brought into the scrotum with archiopexy. Undescended testicles, hypospadias, testicular cancer, and poor semen quality form testicular dysgenesis syndrome. This syndrome is thought to be caused by environmental factors that affect fetal growth and gonads during fetal life (1).

2. Archiopexy technique

A surgeon can perform archiopexy in a variety of ways. If the testicle is not palpable, laparoscopy is used. This can be a one-step or two-step procedure, depending on the relaxation of the spermatic cord and testicular vessels. If the testicle is in the inguinal canal, inguinal archiopexy is performed. If the testicle is retractable or at the top of the scrotum, the method of choice is the scrotum method. Usually only one testicle is fixed and then allowed to heal, so if blood flow is lost or infection develops, the patient will have a healthy testicle. (Fig. 2). Types of archiopexy surgical procedures: - Scrotal method - Inguinal method -Laparoscopic procedure

3. Procedure of the research implementation

This retrospective cross-sectional descriptive study, after obtaining permission from the University Research Ethics Committee and coordination with the medical records unit of the 17th Shahrivar Hospital in Rasht, provided information on patients with cryptocurrency admitted to 17 Shahrivar Hospital was collected from 1394 to 1400, at least 12 months after their surgery, using the HIS system. Inclusion criteria included patients with cryptocurrency who underwent reconstructive

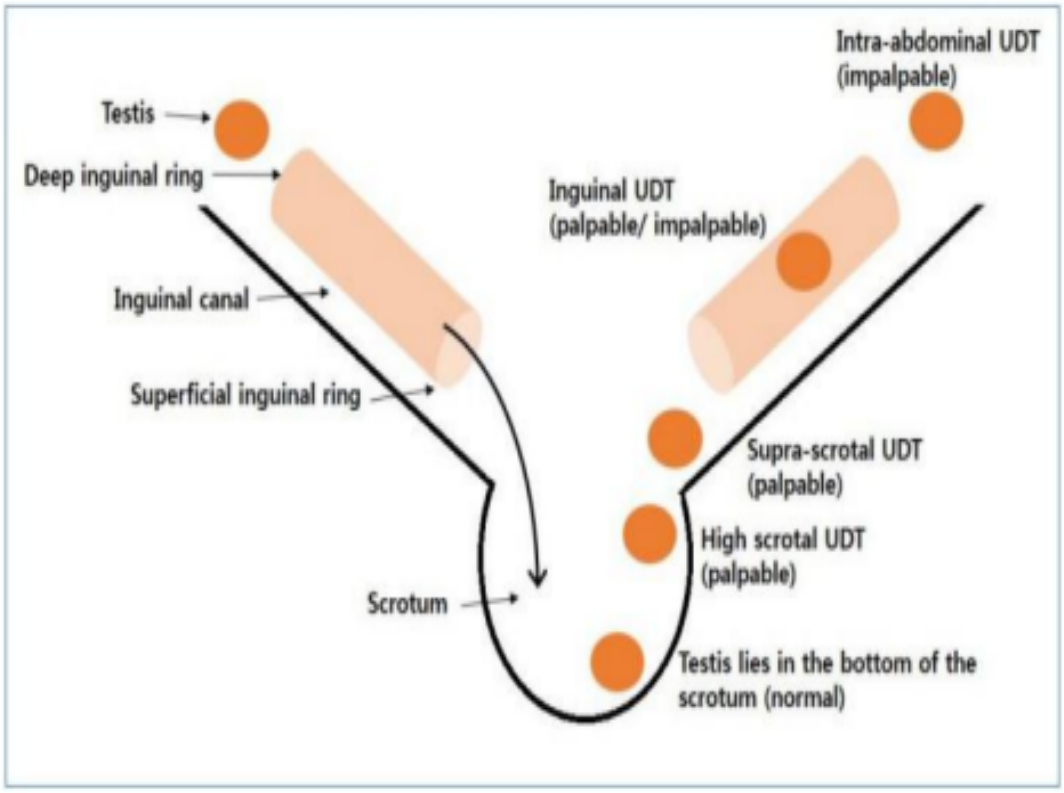

Figure 1: Testicular condition due to testicular descent

FIGURE 1. Testicular condition due to testicular descent

surgery at least 12 months ago and exclusion criteria were defects in patients' medical records and the impossibility of following up patients. The variables of patient's age at surgery, birth age status (preterm, semester, postterm), family history and relationship of the patient with the patient, having a history of previous cryptocidism and its frequency, initial complaint, involved side, palpability, testicular stop Receiving drug treatment, comorbid disease, type of surgery (laparoscopic orchidopexy / trans-scrotal orchidopexy / orchidectomy), postoperative

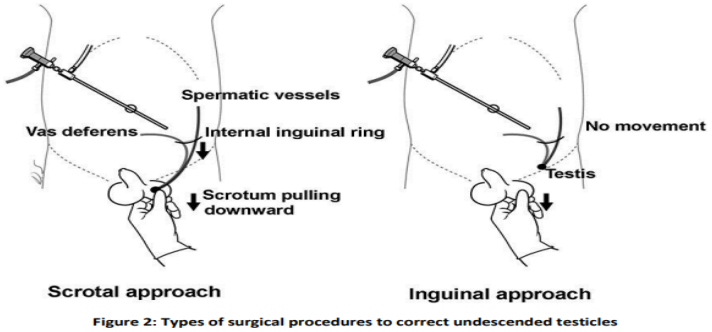

FIGURE 2. Types of surgical procedures to correct undescended testicles

infection were extracted from the patient's file. Information such as; Testicular atrophy, inguinal hernia during 12 months postoperatively, recurrence of cryptocurrency during 12 months postoperatively, testicular torsion during 12 months postoperatively and improved surgical outcome (testicular fixation at its anatomical location) or no recovery was collected and recorded in the HIS system by following up patients by telephone or visiting outpatient clinics and clinics.

3.1. **Aim of research.** follow-up and outcomes of palpable undescended testes (UDT) underwent trans scrotal orchidopexy.

3.2. **Population.** 125 male children with a total of 140 palpable undescended testes (UDT) underwent transscrotal orchidopexy.

4. Method and Analysis

After adjusting each other's effects in the Adjusted Model, two variables were considered as related predictor variables, adverse outcomes and complications. According to the data in the table, preterm infants were more likely than normal children to have a higher percentage of adverse events, with a relative chance of 6.2 times the confidence interval, i.e. preterm children, 6.2 times the confidence interval (1.8, 20.5) being more prone to adverse effects. Are. But post term children are more than one in prevalence compared to normal children, but are not statistically significant. Another predictor of adverse outcomes and complications in UDT children. History of previous UDTs. Those with

this history were 7.3 times more likely to have adverse outcomes with a 95% confidence interval (1.74, 30.75). Therefore, the predictors of this research are based on the information in this table and the regression model of prenatal and post term birth status and its other variable is the previous history of UDT.

5. Demographic findings and other descriptive findings

The mean age at surgery was 15.58 68 5.68 months and most surgeries were performed in the age group of 13 to 24 months (71.2% of cases). The minimum age was 2 months and the maximum age was 36 months. Also, 64% of newborns were born term-term, 29.6% pre-term and 6.4% post-term. All patients presented with the main complaint of testicular absence in the scrotum. Bilateral involvement was observed in 47.2% of cases and bilateral involvement in 24.8%. 59.2% of the testicles were palpable and 58.4% of the testicles were located inside the inguinal canal. Most patients had no disease (75.2%) and did not receive medication. 52.8% of patients underwent laparoscopic orchidopexy and 37.6% underwent trans-scrotal orchidopexy in 9.6%.

6. Data Analysis

Mean age of the patients was 4.6 years. The position of the testis assessed at surgery was in most cases at the external inguinal ring (62.8%), at the neck of the scrotum (15.7%), in the inguinal canal (12.8%), or in an ectopic position (8,5%). A PVD was found in 66 testes (47.1%). Two surgical cases required an inguinal incision. In each patient, the postoperative course was unremarkable. The testicle at 1-year follow-up was in a scrotal position in 134 cases, but 6 patients required a second surgical intervention for re-ascent of the testis. No testicular atrophy or inguinal hernias were observed. Trans scrotal orchidopexy is a simple and effective procedure for the treatment of palpable UDT. The incidence of complications is low and manageable, with rapid postoperative recovery and early resumption of normal activities.

This table compares the outcome and complications during the 12 months of follow-up due to disease-related variables in terms of medication and diseases, type of surgery, and history of undescended testicular UDT. According to the information in this table, the percentage of frequency distribution of consequences due to any of the variables was not significant and also the effects were not significant. Only in the history is the level of significance borderline and negligible. In fact, it shows

that they had a previous history, their complication rate was 3 times higher, i.e 35.5% against 14.4%.

Then, based on above adjusted model analysis we have the following Linear Regression model:
$Y = -2.726 + 1.989$ (Previous history UDT)$+0.97$ (Post Term compared to Term) $+1.828$(Full term compared to term)

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TABLE 1. Comparison of outcome and complications of 12 months of follow-up in terms of variables related to medication, comorbidities, type of surgery, previous history of cryptocurrency in children with cryptocurrency referred to 17 Shahrivar Hospital in Rasht.

P*	Complications during 12 months follow-up			P*	Result			Variables		
	Total	Yse	No		Total	Improved	Not improved			
	101	16	85		101	98	3	*Number*		
	100.0%	15.8%	84.2%		100.0%	97.0%	3.0%	*percent*	*No*	*Receive*
0.374	24	5	19	0.524	24	24	0	*Number*		*medication*
	100.0%	20.8%	79.2%		100.0%	100.0%	0.0%	*percent*	*Yes*	
	94	13	81		94	92	2	*Number*		
	100.0%	13.8%	86.2%		100.0%	97.9%	2.1%	*percent*	*No*	
0.105	31	8	23	0.578	31	30	1	*Number*		*Comorbidities*
	100.0%	25.8%	74.2%		100.0%	96.8%	3.2%	*percent*	*Yes*	
	0	0	0		0	0	0	*Number*	*Laparoscopic*	
	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	*percent*	*orchidopexy*	
	99	16	83		99	97	2	*Number*	*Transcrotal*	*Typeof*
0.341	100.0%	16.2%	83.8%	0.093	100.0%	97.9%	2.1%	*percent*	*archipelago*	*surgery*
	26	5	21					*Number*		
	100.0%	19.2%	80.8%		100.0%	96.2%	3.8%	*percent*	*Orchidectomy*	
	111	16	95		111	108	3	*Number*		
	100.0%	14.4%	85.6%		100.0%	97.3%	2.7%	*percent*	*No*	
	14	5	9		14	14	0	*Number*		*PreviousUDT*
0.059	100.0%	35.7%	64.3%	0.349	100.0%	100.0%	0.0%	*percent*	*Yes*	*history*
	125	21	104		125	122	3	*Number*		
	100.0%	16.8%	83.2%		100.0%	97.6%	2.4%	*percent*	*Total*	

TABLE 2. Determining Predictors of Complications and Adverse Outcomes Using Logistic Regression Model in Children with Cryptocurrency Referred to 17 Shahrivar Hospital in Rasht.

95% C.I. for OR							
Upper	Lower	Odds Ratio	Sig.	B	S.E.	Variables	
1.150	.789	.953	.614	.096	−.048	Age of surgery	UNADJUSTED MODELS
			.051			Age at birth	
27.061	1.330	5.999	.020	.769	1.792	Full term compared to term	
32.654	.424	3.722	.236	1.108	1.314	Post semester relative to semester	
7.206	.292	1.451	.649	.818	.372	Family history of non-testicular descent	
			.360			Side involved	
3.017	.104	.561	.500	.859	−.579	The right side involved the two-way ratio	
1.924	.021	.201	.164	1.152	−1.605	Involved side of the two-way ratio	
.	.000	235525024.731	.999	20970.715	19.277	Tactility	
			.287			Testicular stop	
.	.000	.000	.999	20970.716	−17.655	The place where the testicles stop in the neck of the scrotum relative to the abdomen	
.	.000	.000	.999	20970.715	−19.920	Where the testicles stop inside the inguinal canal relative to the abdomen	
3.238	.149	.694	.642	.786	−.365	Receive medication	
3.780	.129	.699	.677	.861	−.358	Comorbidities	
			.911			Type of surgery	
9.358	.104	.985	.989	1.149	−.016	Type of laparoscopic orchidopexy surgery compared to orchidectomy	
18.007	.107	1.388	.802	1.308	.328	Type of trans-scrotal archiopexy surgery compared to orchidectomy	
127.726	.686	9.363	.093	1.333	2.237	Previous UDT history	
		.392	.618	1.878	−.936	Constant	
			.011			Age at birth	ADJUSTED MODEL
20.505	1.889	6.224	.003	.608	1.828	Full term compared to term	
17.938	.388	2.639	.321	.978	.970	Post Term compared to term	
30.746	1.738	7.311	.007	.733	1.989	Previous UDT history	
		.065	.000	.492	−2.726	Constant	