Management of Undescended Testes in a Cohort of Patients from Romania

C. I. Chiriac Babei[1,2], C. Datu[1,2], M. Andriescu[1,3], O. Ștefan[2]
[1] *University of Medicine and Pharmacy "Carol Davila" Bucharest, Romania, Pediatric Surgery Department*
[2] *Emergency Hospital for Children "Gr. Alexandrescu", Pediatric Surgery Department, Bucharest, Romania*
[3] *MedLife Pediatric Hospital, Pediatric Surgery Department, Bucharest, Romania*

Abstract

Introduction and Objectives. Undescended testes is one of the most frequent pathologies in the pediatric population. Considering the small chances of spontaneus descent after one year of age and the positive effect on the child's physical and psychological development, treatment before the age of twelve months is reccomended. In spite of the numerous recommendations found in the literature, a considerable number of orchiopexies are performed after this age.

Materials and Methods. The study design was retrospective, descriptive and transversal and included a cohort of 237 patients aged between 1 month and 16 years.

Results. 60% of patients received surgical treatment, 28% had hormonal treatment exclusively and 12% were actively monitored and received neither surgical nor medical treatment. The success rate was 97% for orchiopexy and 74% for hormonal therapy. The median age at presentation was 4 years. The patient's age at the moment of intervention influenced the clinical and intraoperatively characteristics of the pathologycal gonad, but not the efficacy of the therapy applied.

Conclusions. When considering the undescended testes, orhiopexy remains the treatment of choice. Only 5% of all patients were treated before 12 months of age.

Keywords: undescended testes, orchiopexy, retractile testes.

Correspondence to: Dr. Constantin Datu M.D., Ph. D.
Emergency Hospital for Children "Gr. Alexandrescu", Pediatric Surgery Department
30-32 Iancu de Hunedoara av., sector 1, code 011743, Bucharest, Romania
Tel: 0040722619196
E-mail: costin_datu@yahoo.com

Introduction and Objectives

Undescended testes has an incidence of 3% among children born on term and can reach 33% in premature babies.[1] This pathology is associated with a high risk of malignancy and infertility, therefore many medical organisations recommend curative surgery before 1 year of age.[2]

The purpose of this study was to descriptively analyse the management of undescended and retractile testes in a cohort of patients from Romania, therefore establishing the basis for future randomised studies and national guidelines.

Materials and Methods

The main objectives analysed were median age at presentation, time of curative treatment, rate of success and postoperative monitoring. On the second hand, data concerning the macroscopic aspect of the gonad (appreciated intraoperatively), associated anomalies and comorbidities ere also included.

The study design was retrospective, descriptive and transversal and included a cohort of 237 patients with age between 1 month and 16 years. Patients admitted as an emergency were excluded. Information was obtained from patient charts.

Results

Because of the great variability of values and the abnormal distribution of the population, obtaining a single value for the mean age at presentation was difficult and not statistically significant. There was considered that a k-cluster analysis was more efficient for this cohort. In the first cluster 50% of patients were included and the mean age was 2 years. The next two clusters comprise 35% and 16% of children included in the study and the mean age was 6 and 11 years (Table 1).

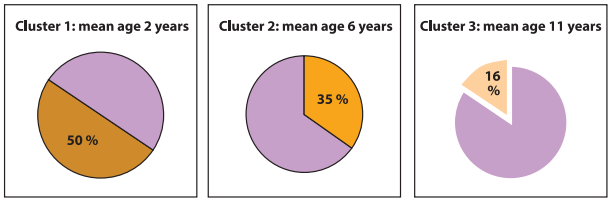


Table 1: K-cluster analysis of patinets' age at presentation

Clinically, the patients were divided using the ICD-10 (International Classification of Disease) (Table 2).

Table 2: Frequency of testicular pathology in the cohort

Classification (ICD-10)	N*			Percent
Left unilateral undescended testes (LUT)	67			26,9%
Right unilateral undescended testes (RUT)	74			29,7%
Bilateral undescended testes	34			13,7%
Retractile testes	74			29,7%
	exclusive	+LUT	+RUT	
	62	7	5	

**The total absolute value is bigger than the number of patients included in the study because one child can have more than one type of pathology.*

Considering the importance in therapeutical decison, palpability of the gonad at clinical examination was documented as separate variabile (Figure 1). As a result, 87% of patients had palpable gonad at the moment of presentation. There wasn't a significant difference between the types of undescended testes concerning this variable. Bivariate analysis as logistic regression was applied including mean age at presentation and clinical features of the gonad – there was a statisticly significant correlation between them (p=0.03). As a conclusion, if the age increases with 1 unit (1 month), the probabiliy of the gonad to be palpable decreses with 1% (p=0.03).

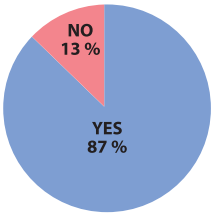
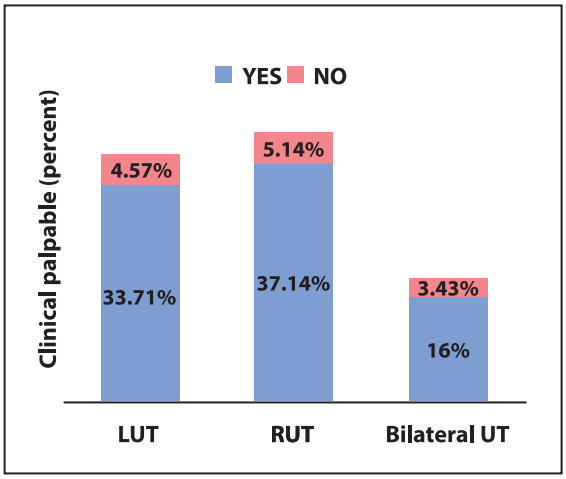
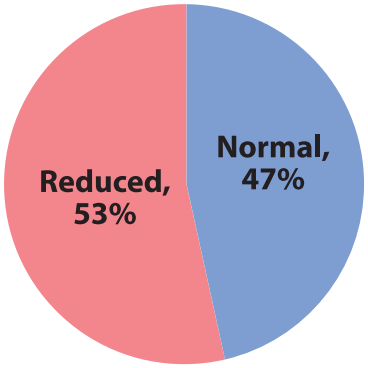


Figure 1: Palpable at clinical examination (left). Type of undescended testes and clinical palpability (right).



Another feature analysed was the dimension of the testicle appreciated clinically (normal for age or reduced) (Figure 2). There was a statistically significant correlation between the age at presentation and the size of the affected gonad (Pearson index, p=0.005) – if the age increases by one unit, the probability of the testicle to have reduced dimensions increases by one unit.

Figure 2: Size of the affected gonad (clinical appreciation)



The presence of other anomalies associated to the undescended or retractile testes was also documented (Figure 3). The most frequent comorbidities were atopy (31.1%) and renal malformation (13.3%) and the associated genital malformations were inguinal hernia (31.6%), hydrocele (21.1%), phymosis (21.1%) and hypospadias.

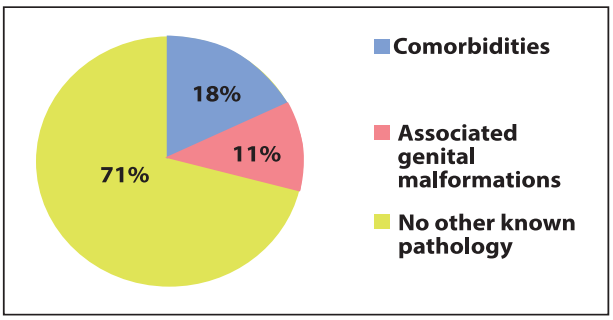
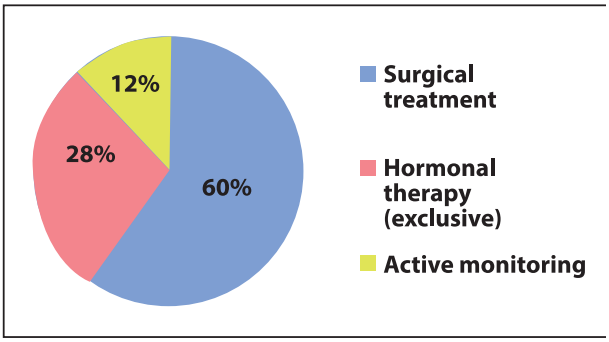


Figure 3: Number of patients who have other anomalies

The therapeutic approach included surgical treatment, hormonal therapy, combined management between the two of them and active monitoring without any treatment (Figure 4).



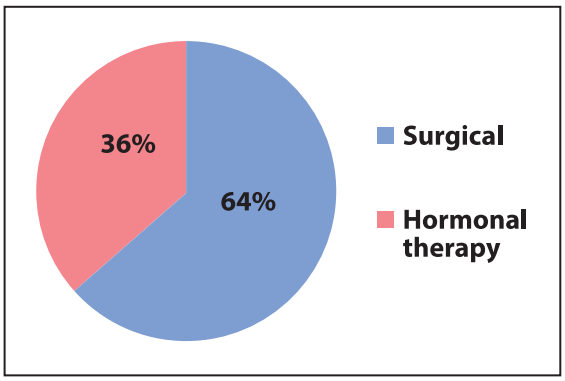


Figure 4: Management of the pathological testicle (left), first choice therapy (right)

The management analysis comprised both true undescended testes and retractile testicle. Surgical treatment was applied as first choice in 64% of patients, while hormonal therapy was first used in 36% of cases; in the majority of these children it was the unique approach (Figure 4 and 5).

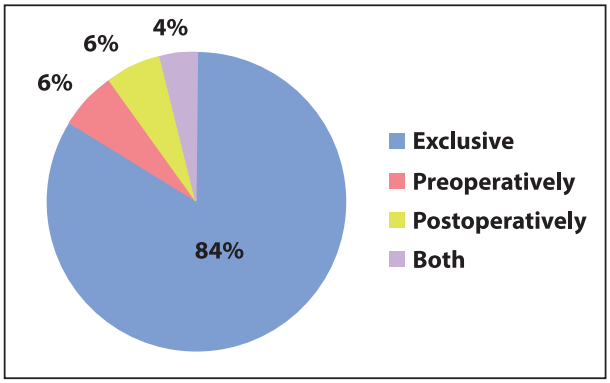


Figure 5: Hormonal therapy

Classical orchiopexy was most frequently used as corrective surgery, while Fowler-Stephens technique was least applied (Figure 6).

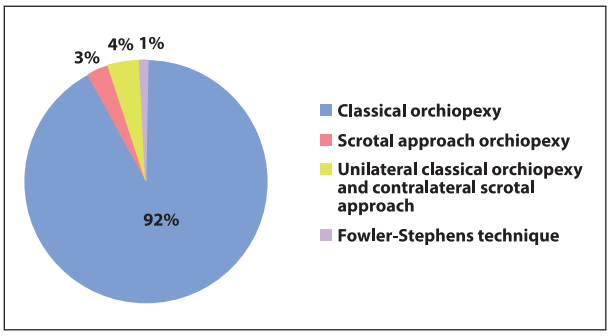


Figure 6: Surgical technique

Intraoperatively, the gonad volume was approximated (surgeon macroscopic appreciation). It was reduced in 73% of cases, most frequently in patient with bilateral undescended testes.

The success rate of surgical treatment was 97%, higher than medical treatment, which was 74% (Figure 7). Bivariate analysis by chi-square test showed that there is a statisticaly significant association between clinical palpability and surgical therapy efficacy (p=0.004).

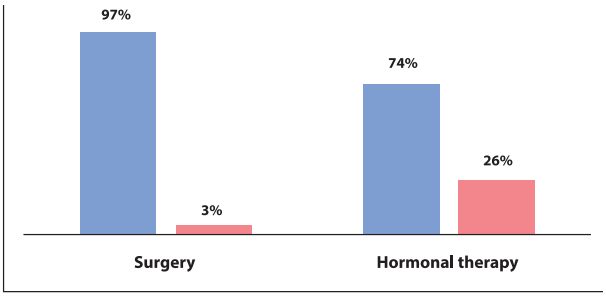


Figure 7: Success and failure rates for surgery and hormonal therapy

Disscutions

Surgical approach is the election therapy when considering undescended testes, results being comparable with the ones in the literature. Although current european guidelines reccomend 1 year postoperative monitoring before declaring success, in this study the patients were only observed 1-3 months after surgery. This is considered a limit of the study.

Success rate for the hormonal therapy was much higher than the one in the literature (74% vs. 55% maximum3). This may be explained by the high number of patients that have retractile testes and received this kind of treatment; a pathology well known to respond well to this kind of therapy.

Late time of surgery is a global problem. Two theories were proposed to explain this situation. In one scenario, children diagnosed at birth are followed up without surgical reccomendation for a longer period of time than the guidelines state.[4] This delay can be the result of various factors, not necessarily linked with the medical decison, such as: social backgroud, health inssurance problems or late refferal to specialist. Another scenario launches the idea that the population of patients that underwent surgery late in life is majorily comprised of ascended testes, moreover as the prevalence of this patology is underestimated.[5] The natural spasticity of the cremasteric muscle, with peak incidence between the age of 5 and 8 years, may be an underlying cause of late orhiopexy. 11,4% of the patients included in this study were had surgery with this diagnosis.

Comorbidities and associated genital anomalies did not influence the success rate af the therapy. The most frequent associated genital anomalies were comparable with the ones cited in the literature.

Conclusions

The majority of patients were treated surgicaly; this is the treatment of choice for undescended testes. Hormonal therapy with beta-hCG can be used as exclusive treatment (especially for retractile testes) ar as adjuvant. Classical orhiopexy is the best choice when considering palpable undescended testes, uni- or bilateral.

Late management of this pathology influenced the clinical features of the gonad with potential long term consequences, this being an issue to emphasize in population awareness.

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