

## Enhancing Outcomes for Adolescent and Young Adult Patients with Undescended Testes

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**Abstract:**

**Background:** Undescended testes (UDT), where one or both testes fail to descend into the scrotum, pose risks such as testicular torsion, trauma, subfertility, and an increased risk of malignancy, including testicular cancer. Early surgical intervention, typically orchidopexy, is essential to mitigate these risks and support normal testicular function. Guidelines recommend performing surgery before the age of two to optimize outcomes and prevent complications.

**Material and Methods:** This was a retrospective study on patients with UDT. Thirteen patients above 15 years who presented with features suggestive of UDT from July 2018 and to January 2020 in Tertiary Care Teaching Institute of India were included in the study.

**Results:** Eighteen patients with problems of testicular descent were identified. Four patients had ectopic testes, one had retractile testes and these were excluded from the study. Two had incomplete records and were also excluded from the study.

**Conclusions:** The management of undescended testes (UDT) in adolescents and young adults is a crucial topic in urology, as delayed diagnosis and treatment can lead to significant complications. Early intervention is important to prevent fertility issues, testicular malignancy, and psychosocial problems.

**Keywords:** Undescended testes, retractile testes, Orchidopexy.

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**Introduction**

Undescended testes, or cryptorchidism, is one of the most common congenital anomalies in male infants, with an incidence of 2–5% in full-term neonates [1]. While spontaneous resolution often occurs within the first year of life, cases that persist into adolescence or adulthood pose unique clinical challenges, including infertility, increased risk of testicular cancer, and hormonal dysfunction [2,3]. Additionally, psychosocial concerns related to body image and delayed diagnosis are significant in this age group [4].

The management of undescended testes in adolescents and young adults differs from that in pediatric cases. In this population, delayed presentation often necessitates individualized treatment strategies. Orchiopexy remains the gold standard for relocating the testis, but considerations of fertility preservation, hormonal therapy, and malignancy risk sometimes lead to the recommendation of orchiectomy [1,5]. Recent advancements, such as laparoscopic orchiopexy, have revolutionized surgical outcomes by improving precision and reducing recovery times

[6]. Testicular malignancy risk, although low, is a crucial concern in cryptorchid testes that persist in adulthood. Early intervention and regular follow-up are vital to mitigate this risk, emphasizing the importance of multidisciplinary care that involves urologists, endocrinologists, and psychologists [1, 7]. Fertility preservation strategies, including semen analysis and sperm banking, are also integral to comprehensive management [8].

Despite these advancements, standardizing guidelines for adolescents and young adults remains a challenge. Evidence suggests that timely surgical correction during childhood is preferable for optimizing outcomes, but when this window is missed, effective adolescent and adult management becomes critical [9]. Thus, this study intend to carry out a study on the presentation and management of undescended testes in adolescents and young adults.

**Material and Methods**

This was a retrospective study on patients with UDT. Thirteen patients above 15 years who

presented with features suggestive of UDT from July 2018 and to January 2020 in Tertiary Care Teaching Institute of India were included in the study.

The study utilized data collected from ward admission registers, surgical theatre records, and patient discharge summaries. Relevant information, including medical history, clinical examination findings, diagnostic investigations, and treatment details, was reviewed. Patients with diagnoses of ectopic testes or retractile testes were excluded from the study. Similarly, records that were incomplete were omitted from the analysis.

Data collated include age at presentation, level of education, location of the testes, reason for delay in presentation, surgical approach, surgery performed, and post-operative complications. All patients had subarachnoid block and open orchidopexy using a sub-dartos fixation using Nylon 3 0 to fix the testis at three points (superior pole, inferior pole and mid pole).

All patients diagnosed with undescended testes (UDT) received counseling about the importance of surgical treatment. Preoperative assessments included a full blood count, genotype analysis, evaluation of electrolyte, urea, and creatinine levels, as well as abdominal and scrotal ultrasound scans. For patients aged 18 years and above, seminal fluid analysis was performed to evaluate fertility potential.

The gathered data were initially recorded using Microsoft Excel 2016 and later analyzed using the Statistical Package for Social Sciences (SPSS) software, version 20 (IBM SPSS Inc., Chicago, IL).

Categorical data were summarized as frequencies and percentages and presented in tables, while continuous variables were reported as means and standard deviations. The findings were illustrated using tables and charts for better visualization.

## Results

Eighteen patients with problems of testicular descent were identified. Four patients had ectopic testes, one had retractile testes, and these were excluded from the study. Two had incomplete records and were also excluded from the study.

Table 1 shows the age group of patients who are presented with UDT, the 15-19-year age group had the highest frequency. Only one patient presented above 30 years of age with UDT. The age range was 15 to 32 years and the median age was 19 years.

Table 2 shows the side with the UDT. Seven subjects had right sided UDT and 4 had left sided UDT. One subject presented with bilateral UDT.

Table 3 shows the surgical approach, the Trans inguinal approach was the most common approach.

Table 4 shows the surgical operation performed, open orchidopexy was the most common operation performed in one stage. No patients had orchidectomy or laparoscopic orchidopexy.

Table 5 shows complications after surgery. The most common complication was scrotal haematoma.

Table 6 shows complications after surgery. The most common complication was scrotal haematoma.

**Table 1: Age group of patients who are presented with UDT.**

Age distribution	Frequency (n)	Percentage (%)
15-19	7	53.8
20-24	3	23.0
25-29	2	15.3
Above 30	1	7.69
<b>Total</b>	<b>13</b>	<b>100</b>

**Table 2: Side with the UDT.**

Side of UDT	Frequency	Percentage
Right alone	8	61.5
Left alone	4	30.7
Bilateral	1	7.6

**Table 3: The surgical approach.**

Surgical approach	Frequency	Percentage
Trans inguinal	11	84.6
Trans scrotal	2	15.3
<b>Total</b>	<b>13</b>	<b>100</b>

**Table 4: The surgical operation performed.**

Operation performed	Frequency	Percentage
Open orchidopexy	13	100
Orchidectomy	0	0
Laparoscopic orchidectomy	0	0
<b>Total</b>	<b>13</b>	<b>100</b>

**Table 5: Complications after surgery.**

Complication	Frequency	Percentage
Scrotal hematoma	4	80
Reduced testicular size	1	20
<b>Total</b>	<b>5</b>	<b>100</b>

**Table 6: Associated anomaly.**

Anomaly	Frequency	Percentage
Hypospadias	1	50
Umbilical hernia	1	50
<b>Total</b>	<b>2</b>	<b>100</b>

## Discussion

The management of undescended testes (UDT) in adolescents and young adults is a crucial topic in urology, as delayed diagnosis and treatment can lead to significant complications. Early intervention is important to prevent fertility issues, testicular malignancy, and psychosocial problems. When treatment is delayed into adolescence or adulthood, the approach to managing UDT becomes more complex, requiring careful consideration of numerous factors such as fertility, cancer risk, and emotional well-being.

Testicular cancer is one of the most concerning complications associated with untreated UDT. Studies have demonstrated that men with undescended testes have a significantly higher risk of developing testicular cancer, particularly in cases where the testes are left untreated into adulthood. This underscores the importance of timely surgical intervention to relocate the testis and reduce malignancy risk. In cases where orchidopexy is not feasible or the risk of malignancy is particularly high, orchietomy may be considered to eliminate the potential for cancer [10,11]

Fertility preservation is another key consideration, particularly for individuals in their late teens or early adulthood. As UDT can impair spermatogenesis, a thorough assessment of fertility through seminal fluid analysis is essential for men over eighteen. Early surgical intervention, ideally before the age of eighteen, has been shown to improve fertility outcomes and preserve testicular function [4,5]. However, in older patients who are present with UDT, fertility options such as sperm banking should be discussed prior to surgery [3].

Psychosocial factors, including body image and self-esteem, are often overlooked but are

significant in adolescents and young adults with UDT. These patients may face feelings of inadequacy or embarrassment due to the condition, which can affect their mental health and quality of life. Therefore, a comprehensive approach that includes psychological counseling and support is vital to address these concerns and ensure the patient's emotional well-being [7]. Involving multidisciplinary teams that include urologists, endocrinologists, and mental health professionals can help provide comprehensive care.

Minimally invasive surgical techniques, such as laparoscopy, have revolutionized the management of UDT in adolescents and adults. These procedures offer advantages such as reduced recovery time, less postoperative pain, and better cosmetic outcomes, which are particularly important for young adults concerned about the appearance of their genitalia [6]. Laparoscopic orchidopexy is associated with improved outcomes and a quicker return to normal activities, further supporting its use in these populations.

The management of UDT in adolescents and young adults remains complex and individualized. While early diagnosis and treatment are ideal, those who present later in life require a thoughtful and tailored approach. Regular follow-up and long-term monitoring are essential to assess complications such as testicular cancer and to evaluate the success of fertility preservation. Increasing awareness and encouraging earlier treatment initiation could significantly reduce the incidence of long-term complications in this population [8].

## Conclusion

Delayed presentation of undescended testes (UDT) is often seen in patients. The condition is more prevalent on the right side, with the testes commonly located in the inguinal canal. Inguinal

orchidopexy emerged as the most frequently performed surgical procedure, and scrotal hematoma was the most common complication observed post-surgery.

The management of undescended testes (UDT) in adolescents and young adults requires timely intervention to prevent complications such as testicular cancer and fertility issues. Early surgery, including laparoscopic techniques, is key to preserving function and addressing cosmetic concerns. Fertility preservation should be prioritized in older patients, with semen analysis and sperm banking considered. Psychological support is also vital to address body image and self-esteem concerns. Clear guidelines and regular follow-up are essential for optimal care, ensuring better outcomes through a multidisciplinary approach.

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