

# Testicular Prosthesis in Adolescents/Teens – our Experience at Tertiary Hospital

Original  
Article

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## ABSTRACT

**Introduction:** The presence of normal testes bilaterally plays an important role in the normal psychological development of young males. Absence of an intrascrotal testis can be found in adolescents/teens caused by agenesis, failure of normal testicular descent, or surgical removal following trauma, torsion, infection and testicular cancers. Testicular prosthesis insertion (TPI) may be offered for cosmetic or psychological purposes to such patients. We retrospectively reviewed our series of young males who had undergone testicular prosthesis insertion.

**Materials & Methods:** This retrospective study was based on a cohort of adolescent/teen males who underwent insertion of testicular prosthesis (TPI) at our hospital. Data on the age, indication, pre-operative history, size of prosthesis, operative details, and post-operative complications were extracted from case records and OPD (Out Patient Department) cards.

**Results:** In all a total of 27 adolescents/teens underwent insertion of testicular prosthesis. The “wink” incision (supra-scrotal) was used for placement of prosthesis in 18 (66.6%) patients. and the inguinal incision in 9 (33.3%). Extra small sized saline filled prosthesis was used in 6 patients, small size in 19 patients and medium sized in 2 patients. 85.18% felt that it would have been better if the implant was offered at the time of the initial surgery. Twenty five (92.5%) patients thought that having the appearance of two testes in the scrotum was important to them. The results of the questionnaire showed that 81.4% (22) of those who received a prosthesis felt they had an excellent or good result.

**Conclusions:** Testicular prostheses insertion is technically a simple procedure using either a supra-scrotal or inguinal incision and is associated with low complication rates. Adolescents/teens would like the procedure to be offered at the time of orchidectomy. Most patients felt they had an excellent or good result.

**Key Words:** Orchidectomy, undescended testes, Torsion; Testicular prosthesis.

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## INTRODUCTION

Testicular loss arises following orchidectomy for reasons such as torsion, mal-descent, trauma, infection or malignancy. Testicular absence is commonly seen in cryptorchidism from either an undescended or ectopic testis. It may also be a result of testicular agenesis or atrophy following intra-uterine torsion (vanishing testis syndrome). The absence of a testis from the scrotal sac represents a psychologically traumatic experience in males of any age from childhood to the elderly<sup>[1]</sup>. In such situations patients may at some stage, request the implantation of an artificial testis for cosmetic or psychological reasons<sup>1,2</sup>. This is more likely in patients who have lost a testis compared to those born with an absent testis. Female-to-male trans-sexuals may also seek testicular prosthesis as part of their gender reassignment surgery.

There are very few quality of life studies reviewing the outcomes of testicular prosthesis insertion. This is surprising as improvement in body image is the only real indication for insertion of testicular prostheses. Lynch *et al*<sup>3</sup> in a study of 19 patients suggested that most men were happy with their implants and body image. Adshead *et al*. found that 91% of patients who replied to their questionnaire felt it was extremely important to be offered an implant at the time of an orchidectomy<sup>[4]</sup>. This study also showed that 73% of those who received a prosthesis felt they had an excellent or good result; however, 23% were dissatisfied because of the shape or position of the prosthesis<sup>4</sup>. Incrocci *et al*. documented that 68% of their patients reported a significant improvement in body appearance with only one patient (5%) dissatisfied<sup>5</sup>. We retrospectively reviewed our series of adolescents/teens who had undergone insertion of testicular prosthesis and

report the indications, choice of prosthetic size, incision and complications.

## MATERIALS & METHODS

This retrospective study was based on a cohort of adolescent/teen males who underwent insertion of testicular prosthesis (TPI) during a 15 year period (Jan 2001 – Dec 2015) at our hospital. Data on the age, indication, pre-operative history, size of prosthesis, operative details, post-operative complications were extracted from case records and OPD (Out Patient Department) cards. This study was approved by the institutional research ethical board and was conducted with accordance to the hospital regulations.

All these patients were invited to answer a questionnaire (Appendix I) during the follow-up period at-least six months following the surgery. The questionnaire was anonymous and comprised 10 questions covering two main areas. First, the reasons for accepting an implant; and second his satisfaction with the size, position, feel, shape and overall comfort.

Statistical analysis was performed using Statistical Package for the Social Sciences software SPSS Inc. Version 20.0. Chicago. We used the chi-squared test for the groups to determine the odds ratios (ORs).

## RESULTS

In all a total of 27 adolescents/teens underwent insertion of testicular prosthesis in a 15 year period ending December 2015. The reason for orchidectomy or absence of testis was as shown in Table 1. The most common indications for orchidectomy were undescended atrophic testis or torsion. The mean age of patients at the time of surgery was 13.43.13± years. The indication for orchidectomy or reason for absence of testis was similar in children both less than and more than 13 years of age.

The procedure of insertion of testicular implant was performed at a later stage and not concurrently with orchidectomy in all the patients. The time interval between the orchidectomy and TPI was around 12 months. The decision for insertion of prosthesis was

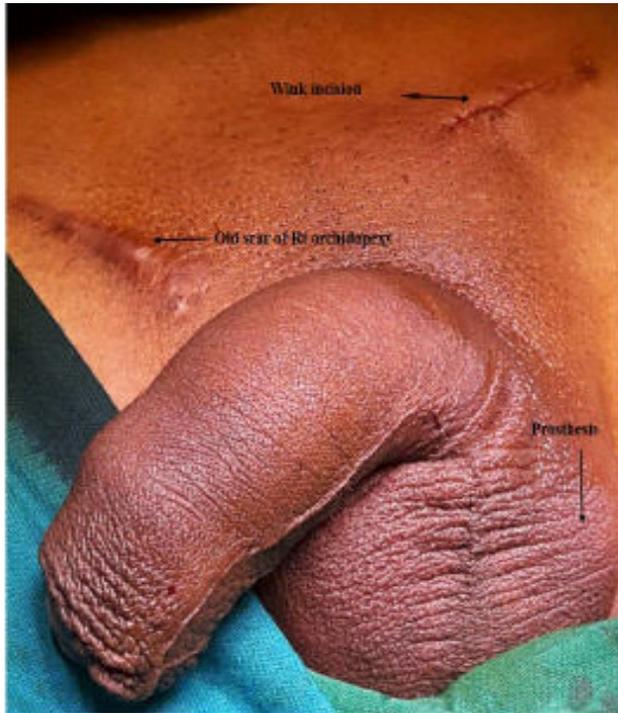
made by the patients together with their parents. In all these cases the suggestion was made by the treating team. The size of the prosthesis was also made in-consultation with the children and their parents. All the affected children were school/college going and understood about the importance body image. The “wink” incision (supra-scrotal) was the most commonly (66.6%) used for placement of prosthesis in 18 patients (Figure 1). The other incision which was alternatively used was the inguinal incision (33.3%). Extra small sized saline filled prosthesis was used in 6 patients, small size in 19 patients and medium sized in 2 patients. The size of the opposite testis was used as a rough guide. Prosthesis were kept in antibiotic solution prior to their insertion in all patients (Figure 2) No major intra-operative or post-operative complications were noted. Post-operative pain/discomfort beyond one week of surgery was noted in three patients, however this subsided on its own within the next 15 days.

None of the patients reported extrusion of the prosthesis. Traumatic rupture was also not noted in any of the patients. Long term scrotal pain/orchalgia occurred in two patients, however the discomfort was mild and needed no active treatment or medications. Upward migration of the prosthesis was not noticed in any patient, probably as the prosthesis was placed in dependent scrotal position and the scrotal neck was approximated with suture following insertion of the prosthesis.

All the 27 patients answered the questionnaire and felt that it was extremely important to be offered an implant, and 85.18% (23) felt that it would have been better if the implant was offered at the time of the initial surgery. Twenty five (92.5%) patients thought that having the appearance of two testes in the scrotum was important to them. The results of the questionnaire showed that 81.4% (22) of those who received a prosthesis felt they had an excellent or good result. All these 22 patients felt that the prosthesis was right in size, shape, weight, position and comfort. The remaining 5 patients felt that they had an average result and expressed that the feel of the testis was not satisfactory. However none of the patients wished to have the prosthesis removed.

**Table 1:** Reasons for absence of testis

Reason for absent testis	< 13 years	≥13 years
Testicular torsion	4	7
Undescended testis with atrophy	4	3
Vascular complication following orchidopexy	1	1
Vanishing testis	3	1
Orchidectomy for trauma		1
Unknown	1	1



**Figure 1:** Post-operative image after left testicular prosthesis insertion in previously operated right orchidopexy patients.



**Figure 2:** Testicular prosthesis kept in antibiotic solution prior to insertion.

## DISCUSSION

The appearance of the male scrotum is an important issue to most men and there is good evidence that for most males, presence of one testis is not enough to retain normal psychosexual function<sup>4</sup>. The absence of a testis from the scrotal sac represents a psychologically traumatic experience in males of any age from childhood to the elderly<sup>6</sup>. Testicular prosthesis placement is a useful important adjunctive reconstructive therapy for managing adolescents/teens with testicular loss or absence. Though these prostheses are functionless, experience has shown that they are extremely helpful in creating a more normal male body image and in preventing/relieving psychological stress in males with a missing testicle<sup>7</sup>.

A silicone-shell liquid silicone filled prosthesis was introduced by Lattimer *et al.* in 1973<sup>8</sup>. This prosthesis was the first to have a more natural, compressible feel and was widely used over the next 20 years. In 1993 concerns emerged regarding the safety of silicone implants of all types due to a suspicion of associated connective tissue disorders, and the U.S. Food and Drug Administration (FDA) mandated cessation of manufacture of all implants till further documentation of their safety and efficacy was confirmed<sup>7</sup>. For the next several years testis implants were not manufactured and therefore were unavailable for implantation for pediatric and adult patients. A 5-year multicenter, prospective clinical trial of a new saline filled silicone shell testis prostheses was undertaken in 18 centers across the U.S.<sup>9</sup>, including both men and boys missing one or both testis. Among 149 patients (76 pediatric) who completed the study, there was no evidence confirming any symptoms of autoimmune disease during the study. Major complications included device extrusion in three patients (2%) and device migration in one (0.7%). All extrusions occurred in pediatric patients having prosthesis placement through a scrotal incision. The reoperation rate was 2% for these issues. Minor complications reported were discomfort or pain (9% overall, but only 2% was deemed device-related pain), allergies or sinusitis (5%), scrotal swelling (3%) and hematoma, numbness, keloid and mild prosthesis migration. No patient was noted to develop a connective tissue disorder clinically or by questionnaire during a 1 year follow-up<sup>9</sup>. Overall this study demonstrated significant increases in well-being in the implant patients (“improved self-esteem, physical attractiveness and behavior and feelings during sexual activity”). Amongst the pediatric patients in particular, statistically significant evidence of improvement over baseline evaluations was seen in the Rosenberg Self-Esteem Scale<sup>9</sup>. The study concluded that the saline filled, testis prosthesis was safe and well tolerated. In addition, the study showed

that by validated self-esteem measures there is an improvement in quality of life in patients who receive such implants<sup>9</sup>.

All adolescents/teens should be offered the choice of a prosthesis, preferably inserted at the initial orchidectomy<sup>4</sup>. This was expressed by 92.5% of the patients in our study. The patients in this study also felt that it was very important to counsel and offer the option of prosthesis. Most of the patients (81.4%) were satisfied with their prosthesis, but there is certainly room for improvement. The authors believe that these adolescents/teens be given the opportunity to physically examine and choose their implant, to avoid dissatisfaction with size, shape and weight. As done in our series, care must be taken to prevent the implant from being too high in the scrotum. The prosthesis should be placed in the most dependent position of the scrotum and the neck of the scrotum must be closed so as to prevent the upward migration of the implant. Presently available implants are less elliptical as the size increases. The length-to-width ratio decreases from small to large such that the large implant (mostly used in adults) is rounder. This could also be the reason of dissatisfaction in some patients in whom large size implants are used.

Marshall<sup>10</sup> reviewed the records of over 2500 testicular prosthetic implantations and reported that prosthesis extrusion was the most common complication, and occurred in patients following orchidectomy for epididymo-orchitis, especially if a scrotal incision had been used to implant the device. Marshall<sup>10</sup> also noted that previous scrotal surgery and a long lag time between orchidectomy and the insertion of the prosthesis increased the risk of developing complications. In our series no major complications were noted.

In contrast to breast implants, where there have been several articles looking at postoperative patient satisfaction, it is surprising to note that there have been very few quality of life studies reviewing the outcomes of testicular prosthesis insertion, wherein improvement in body image is the only real indication for insertion of testicular prostheses<sup>1</sup>. Turek *et al*<sup>9</sup> who were the only ones to study and evaluate testicular prosthesis implantation prospectively found, using the Rosenberg Self-Esteem Scale, Body Esteem Scale and the Body Exposure in Sexual Activities Questionnaire (BESAQ), that insertion of a testicular prosthesis led to quantifiable improvements in self-satisfaction, self-esteem, physical attractiveness and positive feelings during sexual activity at 1-year follow-up.

## CONCLUSION

Testicular prostheses insertion is technically a simple procedure using either a supra-scrotal or inguinal incision and is associated with low complication rates. Adolescents/teens would like the procedure to be offered at the time of orchidectomy. Most patients felt they had an excellent or good result.

## CONFLICT OF INTEREST

There are no conflicts of interest

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