# Orchidopexy for Retractile Testes in Infertile Men
## A Prospective Clinical Study

Mohammad Reza Dadfar

**Introduction:** Retractile testis may affect testicular parenchyma and spermatogenesis, and surgical treatment has been recommended for infertile men with retractile testes. We evaluated outcomes of orchidopexy in men with idiopathic infertility who suffered from bilateral retractile testes.

**Materials and Methods:** We performed dartos pouch orchidopexy on 22 men with idiopathic infertility and bilateral retractile testes. The patients were subsequently followed up for 1 year and sperm parameters were assessed at 3-month intervals. Testicular volume was determined by ultrasonography 1 year postoperatively and compared with that before orchidopexy. Satisfaction with the appearance of the external genitalia, sexual desire, and the ability to have successful intercourse were assessed through a Likert-scale questionnaire.

**Results:** Before the operation, the mean testicular volume was 12.2 ± 5.0% lower than the lower normal limit of the testis volume in adults, and no clinically significant change was observed 1 year after the operation. Sperm density showed no significant changes postoperatively, but the mean proportion of sperms with high-grade motility witnessed a significant increase 1 year after the operation ($P$ = .007). The mean percentage of sperms with normal morphology had a significant decrease at 1 postoperative year. Significant improvements were reported in satisfaction with the appearance of the external genitalia, sexual desire, and successful intercourse 1 year after the operation.

**Conclusion:** Retractile testes might be at risk of growth retardation. We found that orchidopexy in retractile testes may improve sperm motility and increase fertility potential of the patients. We recommend orchidopexy in infertile men with bilateral retractile testes.

*Keywords: cryptorchidism, retractile testes, male infertility, orchidopexy*

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## INTRODUCTION

Retractile testes have been a controversial subject in male infertility. They used to be considered without clinical importance in past years, but recently scrotal orchidopexy has been recommended for these testes by some authors, since they believe that this procedure may increase fertility profile of patients by correction of testicular metabolic environment and better spermatogenesis.[1] Hereby, we report the results of clinical and paraclinical evaluations of 26 infertile men with bilateral retractile testes who underwent dartos pouch orchidopexy.

## MATERIALS AND METHODS

A total of 3241 men were referred to our male infertility clinic during a period from March 2002 through February 2005. In 26 of these patients, bilateral retractile testes was diagnosed according to Caucci and colleagues' definition as "a testis which can be drawn to the scrotal

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base on physical examination by manual traction, but in other times, it is palpable in the upper inguinal or abdominal positions.[2]" Four of the patients were excluded from the study according to our exclusion criteria (Table 1), and only men with a final diagnosis of idiopathic oligoasthenospermia entered the study. In all of these patients, complete clinical and sexual history was obtained and a questionnaire was designed to assess satisfaction with the appearance of the external genitalia, sexual desire, and intercourse based on Likert scales before and 1 year after orchidopexy (Appendix).

Informed consent was obtained from all selected patients and bilateral inguinal exploration and standard dartos pouch orchidopexy was performed under general anesthesia by a single urologist using Redman and Barthold's method.[3] The patients were followed up for at least 1 year according to a unified protocol: physical examination and computer-aided semen analysis at 3-month periods, and scrotal ultrasonography and sexuality assessment using the previously used questionnaire 1 year after the procedure. Semen parameters were compared with the World Health Organization criteria,[4] and a high-grade sperm motility (sum of motility grades A and B) was considered.

The recorded clinical and surgical data were collected and analyzed by the SPSS software (Statistical Package for the Social Sciences, version 11.0, SPSS Inc, Chicago, Ill, USA) to evaluate the effects of orchidopexy on testicular volume and semen parameters of the retractile testis. The McNemar test was used to evaluate changes in the scores of the questionnaire postoperatively. Normal distribution of sperm parameters and testicular volumes were evaluated by Kolmogorov-Smirnov test and the preoperative-postoperative changes were assessed by the paired *t* test.

**Table 1.** Study Exclusion Criteria

| Exclusion Criteria |
|---|
| Disagreement of patient |
| Absence of true bilateral retractile testes |
| Atrophic testes |
| Past history of endocrine diseases or hormone therapy |
| Past history of other testicular diseases |
| Past history of clinical varicocele |
| Past history of any testicular surgery |
| Other proved etiologies for male infertility |

## RESULTS

A total of 22 patients with a diagnosis of nonobstructive idiopathic oligoasthenospermia were enrolled in the study. Their mean age was 37.5 ± 8.7 years (range, 26 to 49 years). Bilateral retractile testes were found on primary physical examination in all of the patients, and in postoperative examinations it was confirmed that all testes were fixed successfully in the lower scrotal area.

Table 2 depicts the mean values for the sperm and testicular parameters measured before and 1 year after orchidopexy. Preoperative ultrasonography revealed that the mean testicular volume was 12.2 ± 5.0% lower than the lower normal limit of the testis volume in adults. On postoperative examinations, done 1 year after orchidopexy, there was a significant change in testicular volumes, but it was not clinically considerable. Sperm density assessments before and after the operation showed no significant changes (Figure 1), but the mean proportion of sperms with high-grade motility witnessed a significant increase 1 year after the operation (Figure 2). This parameter was significantly higher than its normal ranges ($P = .046$).[5] The mean percentage of sperms with normal morphology had a significant decrease at 1 postoperative year, but it was not clinically of importance.

Regarding the sexuality questionnaire, significant improvements were obtained in satisfaction with the appearance of the external genitalia, sexual desire,

**Table 2.** Sperm and Testicular Parameters Before Orchidopexy and 1 Year Postoperatively*

| Parameters | Values | | *P* |
|---|---|---|---|
| | Preoperative | Postoperative | |
| Testicular volume, mL | 23.63 ± 1.17 (21.2 to 25.2) | 24.19 ± 1.25 (21.2 to 25.7) | .02 |
| Sperm density, × $10^6$/mL | 34.18 ± 1.50 (31.3 to 36.4) | 34.56 ± 2.53 (25.2 to 36.8) | .51 |
| High-grade sperm motility, % | 15.34 ± 1.87 (12.2 to 18.2) | 31.00 ± 9.85 (13.3 to 45.2) | < .001 |
| Sperm morphology, % | 18.12 ± 3.60 (12.2 to 24.1) | 17.69 ± 3.73 (12.1 to 24.1) | .007 |

*Values in parentheses are the minimums and maximums.

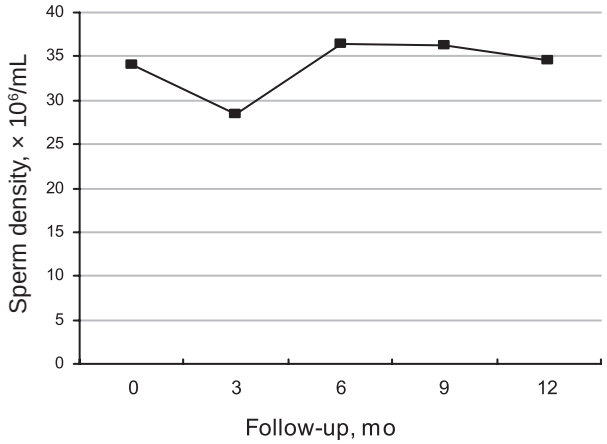


**Figure 1.** Sperm density in the patients with retractile testes before orchidopexy and during the follow-up period.

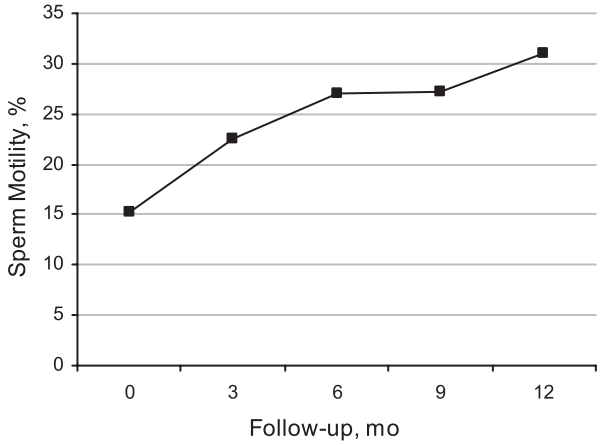


**Figure 2.** High-grade sperm motility in the patients with retractile testes before orchidopexy and during the follow-up period.

and successful intercourse (Table 3). Preoperative responses of the patients to the question about satisfaction with appearance of their external genitalia showed that 9 (40.9%) were not satisfied at all, while 1 year after orchidopexy no satisfaction was mentioned by only 2 patients (9.1%), and 9 (40.9%) stated the level of "very good" ($P = .001$). Sexual desire was "very low" or "a little" in 13 patients (59.1%), and 1 year postoperatively, 17 (72.3%) mentioned "moderate" or "very good" for this factor ($P = .003$). The physical ability of successful intercourse had moderate improvement and 17 patients (72.3%) responded to have a "moderate" or "strong" status ($P = .046$). Successful induction of clinical pregnancy was reported in 2 patients (9.1%) in our series during follow-up period.

## DISCUSSION

Clinical significance of retractile testis and its effect on male infertility has been a matter of debate since many years ago.[6] Puri and Nixon reported no detrimental effect of retractile testes on the patient fertility and other investigators such as La Scala and Ein recommended no surgical intervention for these gonads.[7,8] In contrast, some other investigators have defended hormonal or surgical therapy,[9] and Raboch and Pondelickova reported low sperm values in adolescents with unilateral or bilateral retractile testes that were ameliorated in a small portion of the patients.[10] Ito and colleagues also recommended early treatment of retractile testes to prevent future severe histologic damages.[11]

**Table 3.** Responses of Patients to Questions on Their genitalia and Sexuality Before Orchidopexy and 1 Year Postoperatively*

| Questionnaire | Patients Responses | | *P* |
|---|---|---|---|
| | Preoperative | Postoperative | |
| Satisfaction with appearance of external genitalia | | | .001 |
| Not at all | 9 (40.9 ) | 2 (9.1) | |
| A little | 4 (18.2) | 2 (9.1) | |
| Can be better | 7 (31.8) | 9 (40.9) | |
| Very good | 2 (9.1) | 9 (40.9) | |
| Sexual desire | | | .003 |
| Very low | 2 (9.1) | 1 (4.5) | |
| A little | 11 (50.0) | 4 (18.2) | |
| Moderate | 6 (27.3) | 9 (40.9) | |
| Very good | 3 (13.6) | 8 (36.4) | |
| Ability of successful intercourse | | | .046 |
| Very weak | 2 (9.1) | 1 (4.5) | |
| Weak | 6 (27.3) | 4 (18.2) | |
| Moderate | 12 (54.6) | 11 (50.0) | |
| Strong | 2 (9.1) | 6 (27.3) | |

*Values in parentheses are percents.

Microscopic parenchymal lesions have also been proved in long-term follow-up of retractile testes.[12] During the recent years, a new trend towards dartos pouch orchidopexy for these organs has been aroused and many investigators have recommended this procedure not only for improving testicular sperm production,[13] but also for preventing from spermatic cord torsion.[14]

Despite the small sample of cases in our prospective study, we had some interesting findings; preoperative mean testicular volume in our patients was less than the normal values for adults. This finding may be related to two probable hypotheses: growth retardation may be due to testicular retraction and secondary deranged internal metabolic milieu of the organ. The other explanation is that the primary maldeveloped testes may become more prone and finally present as retractile organs. These theories both need more investigation and maldevelopment of gubernaculum testis as a fixation anchor may be of pivotal importance in these matters.

In this study, we failed to find significant improvement in the mean sperm density in contrast to the experiment by Caucci and colleagues.[2] This finding along with the relatively stable testicular volumes during the follow-up period may be a sign of permanent damages in function and quantity of spermatogenetic cells of the retractile testes. We speculate that retractile testes may be at risk of growth retardation and orchidopexy in childhood may provide better spermatogenesis and fertility profile in the upcoming years of their adulthood.

The main finding of our study was the significant improvement in sperm motility which was recorded steadily in prolonged follow-up period of orchidopexy. Multiple factors may be responsible for enhanced sperm motility; more favorable scrotal environment for spermatogenesis, decreased hydrostatic pressure on the testes, and lower intrascrotal temperature, all may have a role here.[15] More extended and better planned national or international studies with larger patient populations may produce more information on this controversial subject.

Another interesting finding in our study was improvement in sexual desire and function in postoperative visits. These changes were proved through a questionnaire with direct questions on sexual life and potency status of the patient. We linked these findings with increased self-esteem of the patients secondary to favorable changes in the appearance of the external genitalia after the operation and stable decent of the testes to the intrascrotal position. This outcome may also encourage patients to better follow their infertility therapeutic plans.

## CONCLUSION

Retractile testes are at risk of growth retardation. Although we were unable to show improvement in sperm density, increased sperm motility, satisfactory sexuality, and increased self-esteem of the patient are all in favor of recommending scrotal orchidopexy in infertile men with retractile testis.

## CONFLICT OF INTEREST

None declared.

## APPENDIX

### Sexuality Questionnaire

1. How much do you like or is satisfied with appearance and shape of your external genitalia in present status?

(a) not at all
(b) a little
(c) it can be better
(d) it is very good

2. How is your present level of sexual desire?

(a) very low
(b) a little
(c) moderate
(d) very good

3. How is your ability of successful sexual intercourse now?

(a) very weak
(b) weak
(c) moderate
(d) strong

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