

# Prospective Randomised Controlled Trial Comparing Sub-Epididymal Orchiectomy Versus Conventional Orchiectomy in Metastatic Carcinoma of Prostate

Shivadeo Bapat · Pratikshit M. Mahajan ·  
Ashish A. Bhave · Yogesh B. Kshirsagar ·  
Yogesh B. Sovani · Abhirudra Mulay

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**Abstract** Androgen blockade (surgical or medical castration) is a standard procedure for patients with metastatic carcinoma prostate. Sub-epididymal orchiectomy involves removal of testis leaving behind epididymis. This epididymal stump over a period gives a pseudo testicular feel within the scrotum. We present a prospective randomized study to assess the functional utility of this procedure and compare it with total orchiectomy in terms of achieving castrate levels. From July 2005–Jan 2008, 60 patients with metastatic carcinoma prostate were alternately randomised and allotted to two groups, 30 underwent sub-epididymal orchiectomy (group A) and remaining 30 (group B) underwent total orchiectomy. Age: 56–80 years. Serum PSA: 55–268 ng/ml. Preoperative serum testosterone: Group A—300–650 ng/ml and group B—320–640 ng/ml. Postoperative serum testosterone: group A—2–18 ng/ml and group B—7–15 ng/ml on day 7 after surgery. Operating time—26–40 mins for group A and 20–34 mins for group B. Follow up—6 weeks and 3 months. At 3 months patients were asked to grade appearance of scrotum for aesthetic value on a scale of 1–100 using visual analogue score. Postoperative serum testosterone reached castrate levels in seven days (both groups). Duration of surgery in both groups was comparable. Complications—wound infection in 1 patient (group A) & 1 scrotal hematoma (group B). Satisfaction score for group A ( $83.5 \pm 9.7$ ) was significantly ( $p < 0.05$ ) better (95%CI—18.58–28.42), compared to that of group B ( $60 \pm 9.4$ ) by using 't' test. Sub epididymal orchiectomy is comparable to total orchiectomy in terms of

achieving castrate levels with similar operating time. It has significant advantage in terms of mental satisfaction to patients. It is a simple and safe procedure that can be conveniently performed in an outpatient clinic setting using pure local anaesthesia.

**Keywords** Epididymoplasty · Epididymis sparing orchiectomy

## Introduction

Androgen blockade is a standard procedure for patients with metastatic carcinoma prostate. Androgen blockade can be achieved either by medical or surgical castration. Medical castration involves use of LHRH agonists. This is a life long therapy & is quite expensive to patients [1–3]. Surgical castration is cost effective and involves bilateral orchiectomy (total, sub-epididymal or sub capsular). Sub-epididymal orchiectomy involves removal of testis leaving behind epididymis [4]. This epididymal stump over a period gives a pseudo testicular feel within the scrotum [5]. Procedure is a very simple & safe which can be carried out under local anaesthesia in an out patient clinic [5, 6]. The aim of our prospective study is to compare the functional utility of sub-epididymal orchiectomy with total orchiectomy in terms of achieving castrate levels & patient satisfaction.

## Subjects and Methods

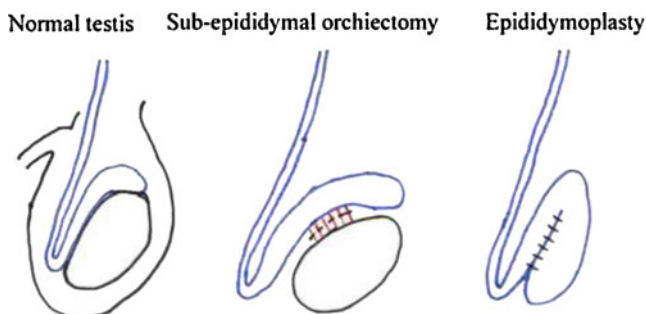
From July 2005 to Jan 2008, 60 patients with carcinoma prostate underwent bilateral orchiectomy at our institute.

S. Bapat (✉) · P. M. Mahajan · A. A. Bhave · Y. B. Kshirsagar ·  
Y. B. Sovani · A. Mulay  
Ratna Memorial Hospital,  
Pune 411053, Maharashtra, India  
e-mail: shivadeo@gateway-ip.com

Patients were alternately randomised, of which 30 patients were subjected to sub-epididymal orchiectomy (group A) and remaining 30 underwent total orchiectomy (group B). The only exclusion criteria was bleeding disorders. 10 patients were on LHRH agonists pre operatively of which 4 entered group A & 6 entered group B. Age: 56–80 years (mean 63 years). Serum PSA ranged from 55–268 ng/ml (mean 76 ng/ml). Preoperative serum testosterone: Group A—300–650 ng/ml and group B—320–640 ng/ml. All patients were counselled regarding post-operative sexual dysfunction. All patients were operated by same surgeon and his team of residents. Procedure was performed purely under local anaesthesia through a transverse skin incision on the scrotum running across midline. Proposed skin incision site was infiltrated with 2% plain lignocaine.

Through one end of incision site, the needle was directed backwards into the spermatic cord which was grasped in two fingers 1.5 ml of 2% lignocaine was infiltrated into and around the cord. Similar procedure was performed on the other side. Transverse skin incision was made 1.5 cm on either side of median raphe (total 3 cm). Testis was exposed after opening layers of scrotum & delivered out of the wound. Testis was dissected free from epididymis using electrocautery. Care was taken not to open the capsule (tunica albuginea). The vascular supply entering the testis was transfixed by 3/0 catgut. Epididymoplasty was performed by suturing head and tail of epididymis together by catgut. The epididymal stump was delivered back into scrotum (Fig. 1). Similar procedure was performed on other side. Total orchiectomy was accomplished in group B patients through the similar incision. Operating time ranged from 26–50 (34 mins) for group A and 20–34 (29 mins) for group B. Two patients in group A had significantly longer operating time due to excessive scarring following previous scrotal surgery. Post operative serum testosterone was checked on day 7 of surgery to confirm castrate levels. All patients were followed at 6 weeks & 3 months.

At 3 months these patients were asked to grade the appearance of scrotum for its aesthetic value and their mental satisfaction of the procedure from 1–100.



**Fig. 1** Illustrated Diagram

## Results

Postoperative serum testosterone reached castrate level in both groups on day 7 after surgery (Group A—2–18 ng/ml and group B—7–15 ng/ml). Satisfaction score of group A patients was significantly better ( $83.5 \pm 9.7$ ) ( $p < 0.05$ ) (95%CI—18.58–28.42) compared to that of group B ( $60 \pm 9.4$ ). At 3 months 19/30 of group A patients claimed that they could not convincingly declare on palpation that their testis had been removed. None of group B patients could feel the testicles in the scrotal sac. Complications seen were wound infection in 1 patient of group A & scrotal haematoma in 1 patient requiring clot evacuation in group B.

## Discussion

Testosterone deprivation, the cornerstone for the treatment of metastatic prostate cancer can be achieved by a bilateral total orchiectomy or by the use of a luteinizing hormone-releasing hormone (LHRH) agonist. The major disadvantage of orchiectomy appears to be the psychological one associated with “loss of manhood”. For many men this loss of “manhood” appears to be all but unbearable. However the use of LHRH agonist is expensive and unaffordable in our country to a vast majority of patients.

Total bilateral orchiectomy is a standard procedure for patients with advanced carcinoma prostate and is also cost effective [1–3]. Various surgical modifications like subcapsular orchiectomy, subcapsular orchiectomy with eversion of the tunica albuginea about the epididymis, implantation of testicular prostheses, subepididymal orchiectomy, and orchiectomy in combination with a fibrofatty graft to the tunica vaginalis have been designed to preserve the appearance of testes [7–9]. These modifications have not gained acceptance because of scepticism of leaving behind testosterone secreting tissue. Sub-epididymal orchiectomy is a simple and easy procedure. After removal of testis the two free ends of epididymis are sutured to each other to form Epididymoplasty [4, 5]. In our study sub epididymal orchiectomy was comparable with total orchiectomy in terms of time taken, complication rate and achievement of post operative castrate levels. Both these procedures can be done under local anaesthesia [5, 6]. Patients undergoing sub-epididymal orchiectomy had significant post operative mental satisfaction due to testis like feel (psuedotestis) in the scrotum which preserves the aesthetic appearance of the scrotum. It was observed that the patients of group A recorded high satisfaction score compared to group B patients. Thus the mean satisfaction scores & distribution of scores were significantly different.

## Conclusion

Sub epididymal orchiectomy is comparable to total orchiectomy in terms of achieving castrate levels with similar operating time. It has significant advantage in terms of mental satisfaction to patients.

## References

1. Bayoumi AM, Brown AD (2000) Cost effectiveness of androgen suppression therapies in advanced carcinoma prostate. *J Natl Cancer Inst* 92:1731
2. Chon JK, Jacobs SC, Naslund MJ (2000) Cost value of medical versus surgical hormonal therapy for metastatic carcinoma prostate. *J Urol* 164:735
3. Marianai AJ, Glover M, Arita S (2001) Medical versus surgical androgen suppression therapy for prostate cancer: a 10 year longitudinal cost study. *J Urol* 165:104
4. Issa MM, Lendvay TS, Bouet R, Young MR, Petros JA, Marshall FF (2005) Epididymal sparing bilateral simple orchidectomy with epididymoplasty; preservation of aesthetics and body image. *J Urol* 174:893–897
5. Glenn JF (1990) Subepididymal orchiectomy: the acceptable alternative. *J Urol* 144:942–944
6. Muta MI, Kenneth H, Yaser SB (2004) Spermatic cord anaesthesia block for scrotal procedures in outpatient clinic setting. *J Urol* 172:2358–2361
7. Kihara K, Oshima H (1998) Cosmetic orchiectomy using pedicled fibrofatty tissue graft for prostate cancer; a new approach. *Eur Urol* 34:210
8. Chiou R (1990) Cosmetic orchiectomy. Surgical technique that meets medical & psychologic needs of patients with advanced prostatic carcinoma. *Urology* 36:91
9. Short KL, Howerton LW et al (1984) Subcapsular orchiectomy with testicular prosthesis for metastatic prostate carcinoma. *Urology* 24:38