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Original article.

Subcapsular orchiectomy under local anaesthesia, Day case procedure: Experience at Prince Hussein Urology Center.

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Abstract

Aim:
To report our experience in performing bilateral subcapsular orchiectomy under local anaesthesia as day case procedure in metastatic prostate cancer patients

Material and Methods:
Between January 2004 and December 2008, 96 patients with advanced prostate cancer underwent bilateral subcapsular orchiectomy at our Hospital. In every patient, we performed orchiectomy under spermatic cord block by injection of 8-10 ml anaesthetic mixture (1% lignocaine and 0.25 % bupivacaine hydrochloride) to each spermatic cord and infiltrate at skin incision site. During the operation we monitored blood pressure, pulse rate, and record abnormal symptoms such as abdominal pain, nausea, vomiting and pain score of the procedure was assessed at the end of the operation.

Results:
96 patients underwent operation under local anesthesia, 91 patients tolerate the procedure well, while other 5 patients converted to general anaesthesia due to severe pain. 5patients developed scrotal hematoma, 2 patients developed infections one of them is admitted to control because the need for dressing and debridement

Conclusion:
Bilateral subcapsular orchiectomy in patient with advanced prostate adenocarcinoma under local anaesthesia is simple, cost effective operation which can be done as a day care procedure.

***Key words*:** Subcapsular orchiectomy, bupivacaine, lidocaine.

Introduction:

Huggins and Hodges described the androgen dependent nature of prostate cancer by the observation that surgical castration resulted in prompt relief of pain in patients with bone metastatic prostate cancer, and since then hormonal manipulation in the treatment of prostate cancer has evolved(1,2, 3).

Prostate cancer is the most frequent visceral malignancy and the second leading cause of death in American men. It has been estimated that approximately 184 500 new cases will be diagnosed and over 39 200 men will die from prostate cancer in the United States in 1998 (3, 4, 5, 6).

The annual Medicare expenditure for prostate cancer is approaching $1.5 billion, of which a large portion is spent on androgen deprivation therapy. Androgen deprivation therapy can be achieved medically using luteinizing hormone releasing hormone (LH-RH) agonist or surgically by bilateral orchiectomy. While the two approaches have similar efficacy, medical therapy is significantly more expensive than surgical therapy (4, 7, 8).

The trend towards day case surgery in many countries is increasing (9); it is an efficient way of using resources and reducing waiting lists. Intrascrotal operations are particularly suitable for day case surgery (2, 3, 7, 9). Regional block

techniques have been used for minor urological procedures and one such technique is spermatic cord block (2, 3, 7, 9). This is a simple, cost-effective technique suitable for adults undergoing intrascrotal surgery. It is particularly appropriate when the patient is considered a poor risk for general anaesthesia (9, 10, 11, 12, 13).

We report our successful experience with local anaesthesia for a series of 96 patients undergoing a bilateral Subcapsular orchiectomy in Prince Hussein Urology Center

Materials and Methods:

Of 96 patients from April 2004 – October2008 who were diagnosed prostatic cancer. They were cases of nonlocalized prostatic cancer or the physical status was not suitable for radical prostatectomy. We excluded patients who were allergic to bupivacaine hydrochloride, or having severe hypertension, recent MI, unstable angina, uncorrected bleeding disorder, paraplegia and neuro- sensory deficit. During the pre-operative period we explained the procedure and provided anesthesia only on the scrotal content and scrotal skin at the incision site; The patient would feel some pain initially during the injection of anesthetic agent, and he might have some abdominal discomfort during the cord manipulation, and postoperatively he could ambulate immediately .The patient was not allowed to take anything by mouth after midnight before the procedure.

Every patient was given an intravenous line and an anaesthetist was on stand-by to give anesthesia if spermatic cord block did not work. The scrotum is prepared by pre-operative shaving and is cleansed using 10%povidone – iodine solution and draped in sterile fashion .The anaesthetic agent is a mixture of 1%lidocaine and 0.25 % bupivacaine hydrochloride was selected, the patient was in supine position. The pubic tubercle is palpated; the cord was trapped between the index and middle fingers of the surgeon; 1 cm below and medial to the tubercle was the injected point, infiltrate at skin and pass the needle vertically down to the anterior aspect of the pubic bone. In it course the needle, thus passes through the spermatic cord, 8 -10 ml of anesthetic solution is injected through the cord at slightly different angle and the needle entering the blood vessel be aware of. The instilled volume of anaesthetic solution causes visual ballooning of the grasped segment of the spermatic cord; this bulge is then gently squeezed between the thumb and index finger to disperse the anesthetic fluid within the spermatic cord. After the spermatic cord was blocked the skin at the incision site was infiltrated with 3-5 ml anesthetic fluid, 3 -5 minutes before the start of the operation so that drug became effective. Orchiectomy was performed in the midline raphae incision with epididymis – sparing fashion to create a round structure mimic a small testis for cosmetic result.

A longitudinal incision is made through the tunica albuginea of the testis along its free border, exposing the seminiferous tubules. The internal contents of the testis are quickly freed from the side walls by gentle squeezing the outside of the capsule. This is the most sensitive part of the procedure but if discomfort is experienced, more anesthetic fluid can be injected directly into the cord. The tubules can be disconnected at the testicular hilum using scissors. Any tissue remaining on the inside of the capsule is removed and meticulous haemostasis is established by diathermy. The capsule is resutured with a continuous layer of 3\0 vicryl. The procedure is repeated on other side through the same skin incision and the wound closed using 3\0 vicryl to the tunica vaginalis and covering layers, and 4\0 subcuticular dexon to the scrotal skin. The procedure is completed by local dressing, a large gauze pressure pad and a scrotal support to prevent haematoma formation. During the operation, the patient was monitored and blood pressure, pulse rate and abnormal symptom were recorded; when surgery finished the patient's pain score of the procedure (including pain of anaesthetic injection) was assessed immediately by using visual analog pain scale (0 = no pain, 5 = moderate pain and 10 = worst possible pain) . At 1-week follow-up, the patient's symptom and wound were evaluated again.

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Discussion:

An LHRH agonist is the preferred first option to treat patients with advanced prostatic cancer. However, clinical studies have suggested that an orchiectomy is superior to an LHRH agonist in that it more rapidly achieves castrate levels of testosterone, avoids the testosterone flare, is less expensive, and has superior therapeutic compliance (1, 8, 10, 14).

If there were a castration procedure that did not adversely affect life satisfaction and the male image, this option might become more frequently recommended and chosen. Several attempts have been made to achieve this goal. In 1942, Riba pioneered the subcapsular orchiectomy, a procedure that involved the removal of the testicular parenchyma and the simple closure of the tunica albuginea (10, 13, 16, 17, 19).

No difference was observed between patients who underwent a bilateral total orchiectomy and a subcapsular orchiectomy in preoperative and postoperative testosterone or luteinizing hormone levels(5,17,19).Most importantly, serum PSA and 3-year survivals for patients undergoing a bilateral total orchiectomy and a subcapsular orchiectomy were determined to be similar (3,10).

The technique of spermatic cord block is based on the anatomy :(2, 3, 4, 18) .as the cord emerges from the external ring, it passes over the pubic tubercle and the shifted medially to the scrotum. In this region it is closely associated with the ilioinguinal nerve and the genital branch of genitofemoral nerve, which supply the testis and its covering, the epididymis and the vas deferens but not the scrotal skin. The scrotal skin receives sensory supply from the pudendal nerve and the perineal branch of the posterior cutaneous nerve of the thigh; therefore it needs to be infiltrated with the anesthetic agent separately from spermatic cord block (5, 9, 11, 12). Good result of spermatic cord block facilitates a successful orchiectomy. No complication related to anesthesia was detected in the series. The advantage of spermatic cord block is its short time of recover, low cost and may be performed in patient who has high risk of anesthesia (7, 11, 14, 18). 10 patients numbered their visual analog pain scale 10. Five had underlying anxiety disorder, while the other 5, one had severe pain that needed to be converted to general anesthesia which might have caused by his obesity (BW 86.5 kg, HT 165 cm, BMI 31.77 kg/m2; mean BW = 62.55 kg; patients who had success operation whose BW was in the range of (45 – 68 kg). Other 4 patients have huge inguinal hernias that also make procedure more difficult .Obesity made it difficult to palpate the cord and inject anesthetic agent to the correct point, so the spermatic cord block did not work well.

Three patients had bradycardia (pulse rate = 50|min. 49|min.54/ min) which might due to his vagovagal reflex when the cord was under traction; however they developed no other symptom or hypotension.

Intrascrotal procedures can be performed easily with spermatic cord block rather than general anaesthesia. This offers advantages to both the patient and the treating hospital. For the patients the length of time spent in the recovery room, the chances of intraoperative anesthetic complications and the need for postoperative analgesia are all reduced. For the hospital the obvious advantages in terms of bed occupancy and cost saving may be realized (5, 9, 11, 12)

We evaluated the cost-effectiveness of androgen suppression strategies for men with advanced prostate cancer. Our principal finding is that the effectiveness of orchiectomy is much less expensive.

The subcapsular technique bypasses the need for prosthesis thus contributing to a lower cost when compared to total orchiectomy.

Result:

Of the 96 patients age 65 – 83 yr (mean =71.11 yr), operative time 20 – 55 min (mean 36.00 min), amount of anesthetic mixture 10 – 30 ml (mean = 20 ml) orchiectomy under spermatic cord block were successful in 91\ 96 (94.79 %). Five patients failed because they had so severe pain that needed to be converted to general anesthesia. Three patients had bradycardia (pulse rate = 50|min. 49|min.54/ min), 2 patients had tachycardia (pulse rate = 124/min, 102/min). None of patients had hypotension, nausea or vomiting. No complication related to the anesthesia nor the procedure was seen. Most of

the patients felt little pain especially when monopolar electrocautery was used to cut the tissue or stop bleeding. Post-operatively, all of the patients ambulated immediately; 86 patients (89.47 %) rated their visual analog pain scale between 0 – 6; 10 patients (10.42%) numbered their visual analog pain 10 (5 of them converted from local to general anesthesia). When classify to mild (pain score 0-3/10), moderate (pain score 4-6/10), and severe pain (pain score 7-10/10). 59 patients (61. 46 %) were in mild pain group, 27 patients (28.13 %) had moderate pain and severe pain in 10 patients (10.42 %) table-1. At 1-week follow-up, 2 patients suffer from surgical wound infection , one is admitted to hospital for dressing and debridement, the other treated as outpatient with wound dressing and oral antibiotic treatment; 5 patients had scrotal hematoma which improved with time and conservative treatment.

Conclusion:

Bilateral subcapsular orchiectomy can be safely done under local anaesthesia. It is a simple and coast effective procedure for treatment of advanced prostatic cancer.

The patient needs to be explained about the procedure and warned about the symptoms that may be experienced during the operation. Spermatic cord block is not suitable in patient with anxiety or obesity.

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Visual analog pain score	Number of patient
0	15 (15.63 %)
1	10 (10.42 %)
2	9 (9.38 %)
3	25 (26.04 %)
4	20 (20.83 %)
5	4 (4.17 %)
6	3 (3.13 %)
7	0
8	0
9	0
10	10 (10.42 %)

Table 1. The pain scale assessed at the end of the procedure.

0 = no pain; 5 = moderate pain; and
10 = worst possible pain.

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