

Hydrocoele Surgery Under Local Anesthesia: Practical Or Painful

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Abstract

Background: Vaginal hydrocoele is abnormal collection of serous fluid in the tunica vaginalis or a patent processus vaginalis. It is one of the common causes of scrotal swellings in all age group and frequently encountered in surgery OPD. It often requires surgical treatment. However in our setting and in many developing and underdeveloped countries, availability of general anesthetic services is poor due to lack of trained personnel and equipments. Hence hydrocoele surgery is mostly done under local anesthesia.

Objectives: To ascertain the practicability and acceptability of hydrocoele surgery under local anesthesia.

Methods: A prospective study was carried out on patients undergoing hydrocoele surgery at the surgery units of Rajendra Institute of Medical Sciences (RIMS), Ranchi, Jharkhand a premier teaching institution in Eastern India. 150 patients admitted in the study duration of January 2016 to June 2016 with diagnosis of unilateral hydrocoele without any co-morbidity and in the age group of 20 to 50 years were randomly selected and enrolled for study.

Results: The commonest type was vaginal hydrocoele (96%). All patients underwent surgery for hydrocoele; surgery was started under local anesthesia using 1% lignocaine with adrenaline for spermatic cord block and scrotum infiltrated along the line of incision – 80% tolerated well, 16% required additional sedation while 4% were converted to intravenous general anesthesia. But only 60% of them agreed to have such surgery under local anesthesia in future and 30% strongly denied for such surgery under local anesthesia.

Conclusion: Hydrocoele surgery under local anesthesia alone or with additional sedation although well tolerated by most of the patients; but for some patients it's quite painful and unsatisfactory so whenever possible better alternatives viz. spinal anesthesia should be considered for better intra-operative pain relief.

Keywords: Vaginal hydrocoele, surgery, local anesthesia.

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I. Introduction

Hydrocoele is a collection of serous fluid in the tunica vaginalis or a patent processus vaginalis. It may arise in the spermatic cord in the males or canal of Nuck in the females.^[1, 2] Hydrocoele is idiopathic in most cases but in some cases may be secondary to various pathologies like infections (orchitis, epididymitis, tuberculosis or filariasis), testicular torsion, tumor or trauma.^[3, 4] Filarial hydrocoele and chylocoele account for 80% of hydrocoele in some tropical countries where the parasite, *Wuchereria Bancrofti*, is endemic. The diagnosis is essentially clinical, but where doubt exists, scrotal ultrasound can be used to differentiate it from other scrotal lesions.^[5, 6] Controversies exist about the treatment of hydrocoele; aspiration of the fluid and injection of sclerosants has been described, this is however associated with high rate of infection and recurrence.^[4, 5] Some workers have described the use of Di-ethylcarbamazine in the treatment of hydrocoele due to filariasis.^[7, 8] However, hydrocoelectomy remains the treatment of choice for the management of hydroceles.^[4, 9, 10]

Hydrocoelectomy can be done under general or local anesthesia using either bupivacaine or lignocaine.^[11, 12, 13] However hydrocoele repair is also done under spinal anesthesia in many centers. Consideration of safety, cost effectiveness and limited number of trained anesthetists, most hydrocoele repairs are done under local anesthesia in our centre. The advantages local anesthesia includes cost reduction, alleviation of the risks associated with general anesthesia and suitability for patients who have co-morbid medical conditions. The common disadvantage of local anesthesia is inadequate intra-operative pain relief. In this study, we assess the practicability of hydrocoele surgery under local anesthesia using 1% lignocaine with adrenaline for spermatic

cord block and scrotum infiltrated along the line of incision to evaluate the acceptability of this procedure in adult patients.

II. Methods

This was a prospective study carried out on patients undergoing hydrocoele surgery in the surgery units of Rajendra Institute of Medical Sciences (RIMS), Ranchi, Jharkhand a 1500 bedded multi-specialty teaching institution of Eastern India. The study duration was January 2016 to June 2016. 150 patients admitted with diagnosis of unilateral hydrocoele without any co-morbidity and in the age group of 20 to 50 years were randomly selected and enrolled for study. Written consent for hydrocelectomy under local anesthesia was taken from all patients participating in the study. All patients participating in the study were operated under 1% lignocaine with adrenaline.

Inclusion Criteria

- Patients in the age group of 20 to 50 years.
- Patients with unilateral small to moderate sized hydrocoele
- Patients with no associated co-morbidity
- Patients giving consent for hydrocoele surgery under local anesthesia

Exclusion Criteria

- Patients below 20 years and above 50 years
- Patients with bilateral or giant hydrocoele
- Patients with scrotal skin lesions
- Patients with co-morbidity
- Patients not willing to participate in the study
- Patients allergic to lignocaine

All the patients diagnosed with hydrocoele carefully examined and necessary investigations were done before allotting the date for surgery. All patients underwent lignocaine and antibiotic sensitivity test and were given 1 gm IV Ceftriaxone 10 to 30 minutes before surgery. Diclofenac AQ 75 mg was given IV before commencement of surgery. Pulse rate, Blood pressure, saturation and ECG were monitored throughout the procedure. The spermatic cord block was done by the assistant holding the spermatic cord gently between the fore finger and thumb both at the inguino-scrotal junction and just above the scrotum in order to stabilize the spermatic cord. 5 ml of 1% lignocaine with adrenaline (constituted by diluting 2% lignocaine-adrenaline with equal volume of normal saline) was injected around the stabilized spermatic cord using size 23G needle. Before injecting, the plunger of the needle was aspirated to avoid inadvertent intravascular injection of the local anesthetic. Thereafter, scrotal skin and subcutaneous tissue at the site of the incision were infiltrated with 5 ml of same reconstituted lignocaine solution after a negative aspiration test.

Hydrocelectomy proceeded 3–5 minutes later using either the Jaboulay's or Lord's method ^[4,9,10] as appropriate, after ensuring satisfactory local anesthesia by stimulating the infiltrated skin with toothed dissecting forceps. Communication was maintained with the patients throughout the period of the operation and the patients were questioned or observed for subjective symptoms of local anesthetic complications or pain. Pain score was assessed using 4 point categorical verbal score (0 = No pain, 1 = Mild pain, 2 = Moderate pain, 3 = Severe unbearable pain) from the time of the incision, midway and at the end of the procedure. The patient constantly complaining of moderate to severe pain were sedated with IM/IV Diazepam or Midazolam and those still having pain or discomfort and not cooperating were given Propfol infusion. On completion of procedure, the wounds were dressed with scrotal support and the patients were observed for 3 – 6 hours. The patients with uneventful observation hours were discharged on oral antibiotics and analgesics. Before discharge all patients were again asked to give intra-operative pain score (0 = No pain, 1 = Mild pain, 2 = Moderate pain, 3 = Severe unbearable pain). They presented for wound inspection and change of wound dressing on post operative day three and for removal of stitches on the post operative day seven. However, they were asked to present earlier if there was any complaint before the appointment day. Patients' satisfaction with the overall treatment was assessed on the post operative day seven on a scale of 1 – 4 (4 = Very satisfied, 3 = Satisfied, 2 = Disappointed, 1 = Very Disappointed) and whether they will prefer or agree for such surgery under local anesthesia in future (Yes/May be/No)

III. Results

150 adult patients were studied. The age ranged between 21 and 50 years with mean age of 35.7 years. [Table 1] Most of the patients presented late with 114 patients (76%) presenting after 1 year of onset of the scrotal swelling. Most cases had right sided hydrocoele (64%, n = 96). All the cases were non-communicating with vaginal hydrocoele being the commonest (96%, n = 144) and infantile hydrocoele (4%, n = 6). Jaboulay's

procedure was done in 138 cases (92%) and Lord's plication in 12 cases (8%). The duration of surgery (local anesthesia infiltration to last skin stitch) ranged from 25 minutes to 45 minutes. The complications recorded were hematoma in 6 patients (4%), and wound infection in 5 patients (3.34%), all of them were managed conservatively.

All the patients had the procedure using local anesthesia as described in the method; 22% (n = 33) had no complain throughout the operation, 40% (n = 60) had mild pain, pricking or pulling sensation, 18% (n = 27) had pain referred to the lower abdomen but could still tolerate this (moderate pain) and preferred to have the operation completed under local anesthesia. Another 24 (16%) had severe pain which they could not tolerate and were sedated by giving Midazolam or Diazepam IM/IV, 6 (4%) patient required full sedation by propofol infusion. [Table 2] All the patients had uneventful post operative period; 57 patients were discharged home within 4-6 hrs of the procedure and 93 patients discharged on next day. Most of the patients in the study population appeared to be satisfied by the overall procedure but about one fourth were disappointed with the overall procedure. [Table 3] Only 60% (n = 90) patients agreed for similar surgery under local anesthesia in future but 30% (n = 45) strongly disagreed to undergo such surgery under local anesthesia. [Table 4]

IV. Discussion

The scrotal swellings are one of the common problems in all age group and are commonly encountered in surgery OPD. Since scrotum is placed outside the lower abdomen they are easily noticed by the patient himself and are also easily accessible for clinical examination by the treating doctor. The scrotal swellings are usually painless and can attain a very big size without causing much discomfort; so the patients are reluctant to seek medical advice. The social stigma and embarrassment and fear of getting under the knife are the other reasons for late presentation. In the present study about two-thirds patients (76%) presented after 1 year of onset of the scrotal swelling. The hydrocoele remains the commonest cause scrotal swellings; other causes include haematocoele, pyocoele, chylocoele, spermatoceole, epididymal cysts and sebaceous cysts. Indications for treatment include pain, discomfort and cosmetic purpose.^[4] Conventional treatments (for primary hydrocoele, epididymal cyst, and spermatoceole) include repeated aspiration; aspiration and injection of sclerosant or surgery. Aspiration and injection of sclerosant can cause severe pain, and simple aspiration has to be repeated and carries risk of infection and hematoma formation.^[14] The gold standard continues to be surgical extirpation of the cystic lesion.^[15] Surgical treatment of idiopathic hydrocoele includes 4 basic techniques^[16] – Lord's plication^[17] Winkelmann's partial excision and eversion of the sac, Jaboulay's eversion of the sac^[18] and Radical excision of the sac.^[16] The surgery can be done under local, spinal or general anesthesia.

However in our setting and in many developing and underdeveloped countries, availability of general anesthetic services is poor due to lack of trained personnel and equipments. Hence hydrocelectomy is mostly done under local anesthesia. The common disadvantage of local anesthesia is inadequate intra-operative pain relief. The present study done to assess the practicability and acceptability of hydrocelectomy under local anesthesia, most of the patients in the study population appeared to be satisfied by the overall procedure but about one fourth were disappointed. However only 60% (n = 90) patients agreed for similar surgery under local anesthesia in future but 30% (n = 45) strongly disagreed to undergo such surgery under local anesthesia. Furthermore local anesthesia is less suitable for large and bilateral hydrocoele.

V. Conclusion

Although hydrocoele surgery under local anesthesia was well tolerated and accepted by most of the patients in our study but for about one thirds of patients in the study population it was painful, disappointing and unsatisfactory. So whenever possible better anesthesia techniques viz. spinal or general anesthesia should be considered for better intra-operative pain relief. Furthermore local anesthesia is less suitable for large and bilateral hydrocoele.

Limitations

Only unilateral hydrocoele of mild to moderate size were included in the study, so suitability of local anesthesia for large sized and bilateral hydrocoele could not be ascertained from this study.

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Table 1: Age Distribution of study population

Age (years)	No. of Cases	Percentage
21-30	39	26%
31-40	62	41.33%
41-50	49	32.67%
Total	150	100%

Table 2: Patients' tolerance of the procedure – intra operative pain score

Tolerance	No of patients	Percentage
No pain (0)	33	22%
Mild pain (1)	60	40%
Moderate pain (2)	27	18%
Severe unbearable pain (3)	24	16%
Conversion to GA	6	4%
Total	150	100%

Table 3: Patients' satisfaction with the overall treatment

Patient Satisfaction	No of patients	Percentage
Very Satisfied	54	36%
Satisfied	57	38%
Disappointed	21	14%
Very Disappointed	18	12%
Total	100	100%

Table 4: Preference for similar surgery under local anesthesia in future

Patient Preference	No of patients	Percentage
Yes	90	60%
May be	15	10%
No	45	30%
Total	150	100%

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