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Retrosepctive study of sac eversion with minimal separation: surgical experiance of 25 years for hydrocele

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ABSTRACT

Background: Hydrocele is the most common manifestation and an endemic disease in 80 countries. **Objectives:**To study the mode of presentation of the disease. To study the efficacy of a surgical technique "sac eversion with minimal separation" in the treatment of hydrocele. **Methodology/Principal Findings:** A total of 1756 patients with uni- or bilateral hydrocele from the various areas were treated in the study. Diagnosis was mostly by clinical examination and supported by ultrasonography. 812 patients have history of filarial epidedymo orchitis. 207 patients had applied counter irritants 1-3 times. 83 patients had under gone sclerozing injection therapy from quacks. In two patients, sac was found to be very thick and requires sac excision. All the patients were prescribed antibiotics for 6 days and analgesics for 3 days. All the patients were followed up for 6 months for any recurrence or complications. 37 patients had stitch abscess. Two patients developed recurrent hydroceles after 3 months. These two patients were operated by junior residents where eversion was not fixed properly. So recurrence developed in these two patients. None of the patients had haematoma or pyocele. 89 patients, who had filarial hydroceles, were not satisfied with decrease in the size after surgery. The testis is itself is increased in size due to disease process in these patients. **Conclusions:**"Sac eversion with minimal separation" is a simple outpatient procedure can be done under local anaesthesia in primary vaginal hydroceles, filarial hydroceles of moderate size, in patients who had applied counter irritants or had sclerozing agents injections. Post operative pain and oedema is very minimal. Keeping of drain is not required. Hence can be discharged within 4 hours. Recovery observed is faster. 90 % in 1756 patients were fit enough to go to work on 8th day.

Keywords: sac eversion; filarial hydroceles; epidedymo orchitis; endemic zone.

Introduction

Hydrocele is an abnormal collection of serous fluid in some part of the processus vaginalis, usually the tunica[1]. It is divided into simple (scrotal) and communicating[2]. Secondary hydrocoele occur secondary to disease of the testes and epididymis and its management mainly consists of treatment of the underlying cause. Filarial hydrocoele and chylocoele account for 80% of hydrocoele in some tropical countries where the parasite, Wuchereria Bancrofti, is endemic.

Indications for treatment include pain, discomfort, and the cosmetic purpose[3].

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Conventional treatments include repeated 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 haematoma formation[4].

There is no specific treatment for secondary hydrocoele. Management of this condition consists of treatment of the underlying cause. Surgical treatment of idiopathic hydrocoele includes [4] basic techniques [4] – Lord's placation[5], Winkelmann's partial excision and eversion of the sac, Jaboulay's eversion of the sac [6] and radical excision of the sac[4]. Congenital hydrocoele are treated by herniotomy.

Sac eversion with minimal separation" surgical technique developed mainly to treat filarial hydroceles of moderate size hydroceles where plane of cleavage between tunica vaginalis and internal spermatic fascia was obliterated due to application of counter irritants or injection of sclerozing agents under local anaesthesia. But over the period the incidence of patients who had

undergone injection of sclerozing agents or application of counter irritants have gone down.
This method being simple with minimal dissection with rapid recovery and can be done under local anaesthesia without much morbidity is being practiced in primary vaginal hydrocele also.

Hence, a retrospective study of this method is done to find out its efficacy, limitations, complications and recurrence over the period of 25 years from July 1989 to till date.

Methodology

Setting
This study was carried out in 25 years as part of a larger retrospective study on the efficacy of surgical technique "sac eversion with minimal separation" This method of treatment is adopted in different medical institutions and was done by various cadres of doctors such as junior residents, senior residents, assistant professors and associate professors and authors himself in his surgical unit.

Patients
1756 patients had undergone treatment by this surgical technique.

Inclusion criteria

Patients with primary vaginal hydrocele and filarial hydroceles aged more than 18. Patients with history of filarial epidedymo orchitis with secondary hydrocele, patients who have undergone sclerozing agents injection therapy and patients who have applied counter irritants were included in the study.

Exclusion criteria
Patients having filarial scrotum requiring scrotoplasty were not included in this study.
Secondary hydrocele due to acute infection and malignancy are excluded from the study.
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Methods

Documented uni- or bilateral hydrocele by physical examination and ultrasonography of the scrotal area. 812 patients have history of repeated attacks of filarial epidedymo orchitis and had conservative treatment. As these patients have come from endemic zone filariasis. hence it is concluded that these patients had secondary hydrocele due to filariasis. All these patients received diethylcarbama zone citrate 3 weeks before the surgery and later 3 weeks in month for two more months.
207 patients had applied counter irritants 1-3 times. These patients are all above 40 years of age. 83 patients had under gone sclerozing injection therapy from quacks. These patients are above 40 years of age.

These patients had following findings:

- Increased vascularity in plane of cleavage between tunica vaginalis and internal spermatic fascia.
- The sac is thickened.
- Hydrocele fluid is turbid.

Testes and epidedymis are increased in size. Even though sac is thickened to some extent sac excision was not required.
Ultra sound scan was not routinely done, except in cases of infertility to know the status of testis preoperatively.
Pre-operative investigations were done as per the institute protocol. All patients received preoperative antibiotic such as ampicillin or cefataxime one hour prior to surgery.
In two patients, sac was found to be very thick and requires sac excision. Except these two patients, all patients underwent sac eversion with minimal separation

Operation technique[7]

The skin was prepared as usual.3-5ml of 1%xylocaine was used for spermatic cord block; 7-8ml of 1%xylocaine was used as local infiltration anaesthesia along the proposed site of incision and 5cm surrounding the incisional site. A 5 cm long longitudinal incision was given,4 cm lateral to the median raphae, avoiding the visible scrotal vessels. The incision was deepened up to tunica vaginalis. The tunica vaginalis was then separated from other layers about 5 cm around the incision. Even this minimal separation was met with bleeding from small vessels because of adhesions and inflammatory changes. This plane of anatomical cleavage is expected to cause very little damage to vessels; however many of these cases, this plane is obliterated hence perfect haemostasis has to be secured. The sac was then opened and fluid evacuated. The sac opening was then enlarged to the length of testis which was then delivered through the opening by pushing from behind. As the sac is usually adherent scrotal layers, many times posterior and lateral walls of scrotum are invaginated by eversion of the sac. All the contents of sac were scrupulously removed. Interrupted sutures (3-4) with 2-0 chromic catgut were placed between the edges of incised tunica vaginalis and everted tunica vaginalis behind the testis.

The testis was then covered with subcutaneous layers with 2-3 interrupted catgut sutures. In case of difficulty encountered at this stage, the incision was enlarged about 1 cm which facilitated the covering of the testis. The skin was then sutured without drain. As the testis was covered by dissected subcutaneous t issue snugly, the capillary oozing was easily controlled.

All the patients who had undergone surgery under local anaesthesia were discharged 4 hours later on the same day. The patients who had under gone surgery under spinal anaesthesia were discharged after 48 hours. IV Ceftriaxone was given per operatively. Pain was managed with IM/oral Diclofenac sodium and IV Tramadol. Postoperative scrotal support was given in most of the cases. Patients were followed up at regular intervals.

All the patients were prescribed antibiotics for 6 days and analgesics for 3 days. All the patients were followed up for 6 months for any recurrence or complications. 37 patients had stitch abscess which was treated after removal of stitch and change of antibiotics. Two patients developed recurrent hydroceles after 3 months. Junior residents had operated on these patients. Eversion was not fixed properly behind the testis. So recurrence developed. None of the patients had haematoma or pyocele. 89 patients, who had filarial hydroceles, were not satisfied with decrease in the size after surgery. They were expecting normal size of testis. That is not possible in these cases of hydroceles as the testis is itself is increased in size due to disease process.

Results and Discussion

Out of 1756, 926 patients had unilateral hydrocele (52.8 %), 830 patients had bilateral hydrocele (47.2%). 812 patients have given history of filarial epidedymo orchitis (history of fever with chills and rigors along with scrotal swelling and pain.

Unilateral hydrocele

In 18-20 age group, 151 subjects with mean size 15x12x10 cms; in 21-30 age group, 306 subjects with size 16x15x12 cms; in 31-40 age group, 324 subjects with size 18x14x12 cms; in 41-50 age group, 96 subjects with size 20x12x10 cms; in 51-60 age group 39 subjects with size 20x12x10 cms; in 60 –above age group, 10 subjects with size 20x12x10 cms were observed. Overall, 21-40 age group shows higher incidence of unilateral hydrocele.

Bilateral hydrocele

In 18-20 age group, 76 subjects; in 21-30 age group, 114 subjects; in 31-40 age group, 376 subjects; in 41-50 age group, 1846 subjects; in 51-60 age group, 56 subjects; in 60 –above age group, 24 subjects were observed. Overall, 21-40 age group shows higher incidence of unilateral hydrocele. Overall, 31-50 age group shows higher incidence of bilateral hydrocele. (Table 1)450 patients (25%) had eosinophilic count raised marginally but no patient's night blood smear for microfilaria found to be positive. There was increase in duration of disease according to age group from 18-20 to more than 60 age group. 90% in 1756 patients were found to be medically fit enough to go to work on 8th day after treatment.

Age	Mean duration in years	Unilateral	Bilateral	Size in cm	Mean size in cm
18-20	2 (1to3)	151	76	15x10x10 To 15x15x12	15x12x10
21-30	4.6 (1 to 6)	306	114	15x12x10 To 18x15x12	16x15x12
31-40	5.2 (2 to 6)	324	376	16x12x10 To 20x15x12	18x14x12
41-50	8 (3 to !0)	96	184	18x10x10 To 22x13x12	20x12x10
51-60	12(5 to 15)	39	56	18x12x10 To 22x12x10	20x12x10
61 above	15 (10 to20)	10	24	18x15x12 To 22x10x12	20x12x10

Conventional treatments like repeated aspiration; aspiration and injection of sclerosant can cause severe pain, and simple aspiration has to be repeated and carries risk of infection and haematoma formation. The complications during operations on the scrotum are bleeding, injury to the cord structures, torsion of testes due to faulty reposition. The common post operative complications include haematoma and odema11, which can be prevented by meticulous haemostasis and post operative scrotal support. Whereas, in this method of Sac eversion with minimal separation dissection is minimum and have minimal/no such complications. Hence it is simple and safe surgical approach.

Conclusion

This is a simple outpatient procedure can be done under local anaesthesia in primary vaginal hydroceles, filarial hydroceles of moderate size, in patients who had applied counter irritants or had sclerozing agents injections. Post operative pain and oedema is very minimal. Keeping of drain is not required. Hence can be discharged within 4 hours. Recovery is faster. 90 % of 1756 patients were fit enough to go to work on 8th day.

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