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Aspiration and Tetracycline Sclerotherapy of Hydrocele: Can It Replace Surgical Treatment?

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Abstract

A randomized prospective study was carried out on 79 patients with a total of 86 hydroceles to compare surgical treatment with aspiration and tetracycline sclerotherapy. Results revealed that although surgical treatment carried a higher risk of complications (10%) yet, recurrence following it (2.5%) was very low compared to recurrence in sclerotherapy group (67.4%). We concluded that surgery is the treatment of choice for hydrocele. Aspiration/sclerotherapy should be preserved only for patients who are unfit for surgery and it gives the best results in hydroceles with a volume of less than 100 cc.

Introduction

SURGICAL repair is the standard treatment of vaginal hydrocele, specially if it is communicating or multilocular, however; it carries the risk of haematoma (0-17%), infection (2-10%), and recurrence (5-10%), besides it needs hospitalization for 2-5 days [1,2].

Since Maloney in 1975 reported good results after sclerotherapy of hydrocele

with minimal complications compared to surgery [2], this modality has gained popularity as data have accumulated on its efficacy and safety [3].

sclerotherapy is performed as an outpatient procedure and, thus, it is cost effective. The most commonly used sclerosant materials include phenol [2], sodium tetracyclate [3], ethanol amine oleate [4] and tetracycline [5].

The sclerosing effect of tetracycline is thought to be due to the low pH of the solution which induces a significant cell reaction with fibrosclerosis and adhesions of the membranes of the tunica vaginalis [6]. Since we had no experience of tetracycline sclerotherapy, we have carried out a prospective randomized study to assess the efficacy of sclerotherapy versus surgery in cases of hydrocele.

Material and Method

Between July 1991 and December 1992, a prospective randomized study was carried out on 79 patients with a total of 86 hydroceles (bilateral in 7 patients) in Hamad General Hospital, Qatar. The patients were divided on a random into two groups: Group A) 37 patients (40 hydroceles) aged between 24 and 71 years (mean 41 years) with hydrocele volume of 35 to 630 ml (mean 166 ml), who were treated surgically by tunical eversion (31) or excision (6). Group B) 42 patients (46 hydroceles) aged between 19 and 82 years (mean 44.5 years) with hydrocele volume of 18 to 800 ml (mean 180 ml) who underwent aspiration and tetracycline sclerotherapy. All patients were submitted to clinical examination and scrotal ultrasonography. No associated hernia or spermatocele were detected.

Technique of aspiration:

The procedure was done as an outpatient procedure. The patient lied in a supine position and the hydrocele was held

with one hand then a 21 gauge canula was inserted into the upper part of the sac. Transillumination guidance was used in cases of small hydroceles. Aspiration of the fluid was done then specimen was sent for chemical, bacteriological and cytological examination. Thereafter injection of 100 mg of tetracycline diluted in 1ml 1% xylocaine solution was performed. The volume of sclerosing material was variable according to the volume of aspirate (table 1). Immediate post-sclerotherapy scrotal ultrasound examination was done in all cases to be sure that no residual fluid was left behind.

Follow up was scheduled at 1, 2, 3, 6, months and finally at six months intervals. Follow up for 6 to 12 months was available in all patients. Those who were treated by aspiration/sclerotherapy had ultrasonographic examination of the scrotum on each follow up visit.

Results

In group (A) post operative complications included 3 (7.5%) hematomas, 1(2.5%) wound infection while recurrence was detected in 1 case (2.5%) during follow up period. Hospital stay ranged between 2 and 6 days with an average of 3.1 days. Patients resumed full activities 10 to 14 days after discharge.

In group (B), 34 patients (81%) experienced variable scrotal and inguinal pain following sclerotherapy. The pain lasted for a period ranging between 1 hour

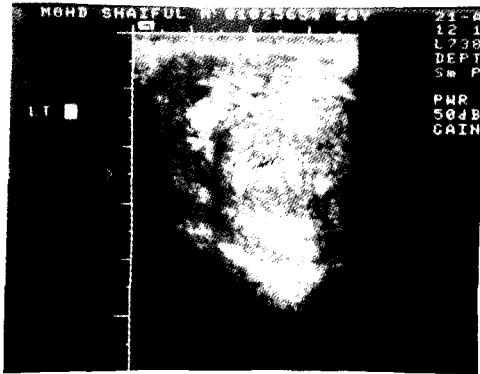


Fig. (1): A case of left hydrocele completely cured by aspiration and tetracycline sclerotherapy. A) before treatment. B) 2 months after treatment. Notice the thickening of the tunica and the adhesions at the upper part.

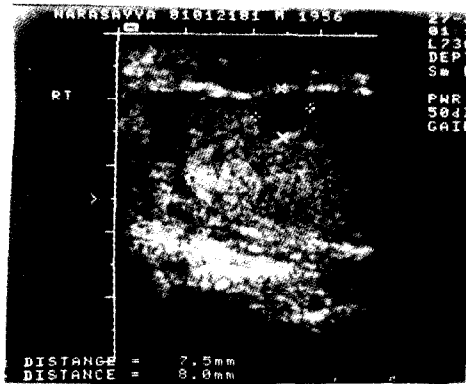


Fig. (2): A case of post-aspiration testicular haematoma. US showed a hypoechoic area in the upper part of the right testis which proved by fine needle aspiration to be haematoma.

and 2 days. Three patients developed vasovagal attack due to the severity of pain. During follow up, only 6 hydroceles (13%) showed no recurrence after one treatment (Fig. 1) while 3 revealed partial recurrence by scrotal ultrasonography. Following a second trial of sclerotherapy, 9 more hydroceles were cured with a total

Table (1): Volume of sclerosant (100 mg tetracycline in 1ml 1%xylocaine)

Volume of fluid aspirated from hydrocele (ml)	Volume of sclerosant injected (ml)
< 20	2
20-50	3
51-100	5
101-200	10
201-300	15
> 300	20

cure rate of 32.6% with 19% requiring a second session. A third treatment was done in 9 patients but recurrence was noticed in all of them. Haematocele was found in 1 (2.2%) and testicular haematoma (Fig. 2) in 1 case (2.2%). No single case of infection was detected in our series. The volume of cured hydroceles ranged between 18 and 140 ml with an average of 56 ml. Out of the 29 patients with recurrence, 23 had surgical treatment while 6 refused any further treatment.

Discussion

Surgical repair for a hydrocele, credited for many years as the line of treatment, has been lately criticized because of the associated postoperative complications. A high rate of complications including scrotal haematoma in 17% and infection in 10% have been reported [2]. However, techniques involving no exci-

sion of the sac have less postoperative complications [7,8].

In our series, out of 40 hydroceles surgically treated, 3 (7.5%) developed haematoma and 1 (2.5%) had wound infection while only 1 patient (2.5%) developed recurrence within the 6 to 12 months follow up period. Eversion of the tunica was done in 31 cases and excision of tunica in 6. Our low rate of complications matches well with those figures reported by Rodriguez [7]. The technical points which we stressed on included: perfect haemostasis, suspension of the scrotum on the abdomen by 1 or 2 ethilon sutures together with cold packs for 24 hours and a mini portovac drain for 48 hours in all cases of excision and in cases of eversion in which we were not happy with haemostasis (3 cases). Antibiotics were given only in the 4 complicated cases.

Table (2): Results of Tetracycline sclerotherapy for Hydrocele.

Reference	No. of hydroceles	Mean vol. (ml)	Follow up (months)	Cure rate (%)
Bodker [6]	10	180	6	90
Bullock [10]	38	240	9	95
Levine [11]	28	150	15	93
Fuse [5]	17	48	3-12	88
Badenoch [12]	15	220	6	33.3
Breda [13]	25	170.2	1.5-16	20
Present study	46	180	6-12	32.6

Aspiration/sclerotherapy was largely abandoned until the report of Maloney [2] who showed a 36% success rate after a single sclerotherapy using phenol and a full cure after 2 or 3 injections in 14 hydroceles studied. Since then, many sclerosant materials have been described for treatment of hydrocele. Although sclerotherapy was first used in hydroceles of a volume less than 100 ml yet recent reports claimed successful sclerotherapy in large hydroceles of a volume of up to 1200 ml [4].

Tetracycline which was used as a sclerosant agent in controlling malignant pleural effusion has been lately used in treatment of hydrocele of testis [9] with a claimed success rate of more than 90% [10]. Our results are in contrast with those reported by Bodker et al [6] (90% cure with 50% of them after a single injection), Levine and De Wolf [11] (93% success rate, 76% after a single injection) and Fuse [5] (88% cure rate, 71% after single injection). However our low success rate is close to that reported by Badenoch et al [12] (33.3% cure rate) and Brida et al [13] (complete healing in 20% and partial healing in 20%). Fuse [5] reported that with the use of 1% xylocaine as a solvent, mild pain was noticed in only 40% of patients. In our series, 39 patients (81%) experienced moderate to severe pain after sclerotherapy and 3 of them developed vasovagal attack.

Roosen et al [14], who advocated sclerotherapy, argued that poor results reported by some investigators may be due to small amount of injected sclerosant material, no support for complete drainage after aspiration or a short (2 weeks) follow up after sclerotherapy since the effect of chemical irritation can simulate recurrence after 6-8 weeks. Fuse [5], reported that thickening of the tunica following sclerotherapy may clinically simulate recurrence. Such pitfalls were avoided in our study; the amount of injected tetracycline was tailored according to the aspirated volume (Table 1), scrotal US was done immediately after therapy and confirmed absence of residual in all cases and first follow up visit was after 1 month. Follow up by scrotal US was done in all cases to document presence or absence of recurrence.

The relatively large volume hydroceles in our study which may be argued to be the reason of our poor results is not different from those reported by others with a success rate of more than 90% (Table 2). Actually we, contrary to other investigators [4, 10], believe that the small percentage of success after sclerotherapy will only occur in hydroceles of a volume of less than 100 ml. The mean volume in our 19 patients who had no recurrence was 56 ml.

In conclusion, it is our opinion that surgical repair, despite being associated with complications, is the preferred method of treatment for hydrocele because of the

low incidence of recurrence (2.5% in our series). Aspiration/tetracycline sclerotherapy is associated with high incidence of recurrence (67.4% in our series) and is not void of side effects. We have abandoned this form of treatment except in patients who are unfit for surgery.

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