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Original Research Article

A randomised study of management modalities in epididymal cyst

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ABSTRACT

Background: Epididymal cysts are common in teenagers and young adults. They can present as unilocular or multilocular swelling. These cysts are generally present on one side but can be bilateral. Small epididymal cyst are asymptomatic but are detected on ultrasound examination of scrotum. This study was done with aim of treating epididymal cyst with different modalities based on size of the epididymal cyst.
Methods: A total of 124 patients of epididymal cyst were included in this study. Scrotal ultrasonography was done in these patients. The clinical presentations of these patients were asymptomatic detected on ultrasound, orchialgia, scrotal swelling and physical examination. Based on the size of epididymal cyst patients were divided into three groups. The treatment modalities used these were natural involution, aspiration, aspiration and sclerosing agent and surgical excision.
Results: The group I consisted of cyst size less than 10mm having 73 patients. The group II consisted of patients with cyst size 11-20mm having 39 patients; and group III patients were with cyst size 21-50mm having 12 patients. Natural involution was most effective treatment modality in group I and group II. Aspiration was the second was most effective. Only a few patients required aspiration and sclerosing agent. Surgical excision was done in majority of group III patients and failed aspiration in group II.
Conclusions: The results of present study show that asymptomatic and small epididymal cyst can be cured by natural regression in 77.42%. The cysts 11 to 20mm are amenable to aspiration alone, only a few need repeat aspiration and instillation of a sclerosing agent. These conservative approaches save the cost. Excision should be reserved for very large cysts and in which conservative approach fails.

Keywords: Conservative, Excision, Epididymal cyst, Orchialgia, Scrotal swelling, Spermatocele

INTRODUCTION

Epididymal cysts are cystic fluid collection in a single sac but can be multilocular. They are commonly solitary and rarely multiple. These cysts are benign in nature.[1] The first clinical presentation can be as scrotal swelling which may enlarge in size and may be narrated by patient as third testicle. The second presentation is as testicular pain or orchalgia. The third method of detection of epididymal cyst is incidental physical examination. The fourth presentation is most common being detected on ultrasound examination of scrotum.[2] Clinical examination of scrotal in paediatric age group may be difficult to make a diagnosis particularly in presence of tenderness. Imaging modality like ultrasound can provide excellent anatomical details as well as perfusion by using colour Doppler. Ultrasound can make a good anatomical and pathological diagnosis.[3]

The exact incidence of epididymal cyst is not known but they are more common in teenagers. In a study review of

paediatric scrotal ultrasounds, an incidence of 14.4% of epididymal cyst was found. The incidence of epididymal cyst increased to 35.5% in patients more than 15 years of age. The patients with epididymal cysts were having larger testes irrespective of age group. They concluded that epididymal cysts are common in teenagers and patients with epididymal cysts had larger testes as compared to boys without epididymal cysts.[4] These epididymal cysts contain clear fluid and are brilliantly translucent but few may have turbid fluid due to presence of spermatozoa.[5]

Epididymal cyst has been associated with diseases like cystic fibrosis, polycystic kidney disease, Von Hippel-lindau disease children exposed to diethylstilbestrol in utero life.[6-7] Clinical examination of scrotum may not be able to diagnose subcentimetric epididymal cysts. The most reliable imaging technique used is ultrasound of scrotum for diagnosis of epididymal cyst.[8] The epididymal cysts are treated by conservative treatment, aspiration of cyst, sclerotherapy and excision of cyst.[9]

This study was planned with objective of choosing treatment modality for epididymal cyst based on size of cyst; and to assess their safety and efficacy.

METHODS

This study was carried out in the outpatient department on the patients presenting with symptoms like unilateral or bilateral scrotal pain, scrotal mass. There were patients who were asymptomatic also. The data was collected between July 2014 to June 2017. The scrotal ultrasonography was the basic imaging study used in these patients. The diagnosis of epididymal cyst was confirmed by scrotal ultrasound in all the cases. A total number of patients included in this study were 124, the diagnosis of epididymal cyst reported in all patients on scrotal ultrasound.

Inclusion criteria

- Scrotal ultrasound reported epididymal cyst
- Patient age group 12 to 40 years of age.

Exclusion criteria

- Patient reported having epididymitis
- Any testicular pathology
- Patients more than 40 years of age.

The demographic characteristics of all the patients were recorded. The children less than 12 years of age were not included in this study as they are treated in paediatric outpatient department. The patients more than 40 years of age were also excluded as most of them were suffering from epididymo-orchitis or other scrotal pathology. The maximum numbers of patients were in the age group 12 to 40 years hence the age limits were kept for this study. The observation was made in reference to unilateral or bilateral, size of epididymal cyst, number of cysts, unilocular or multilocular, site of cyst whether head, body or tail of epididymis.

The treatment of epididymal patients was planned according to size of the cyst. First group included cyst size of less than 10 mm, second group had cyst size of11-20mm, and third group had cyst size of 21-50mm. Four modalities were used in the treatment of these patients. These were natural regression; the second modality was aspiration alone; the third modality used was repeat aspiration and sclerosing agent injection; and the fourth modality was excision of cyst. Recurrence after aspiration or after sclerosing injection was also subjected to surgical excision. The follow up of these patients was done up to one year by ultrasound as and when patient visited outpatient department.

RESULTS

The results of observations, treatment and follow up were analyzed. These 124 patients were divided into three groups based on size of cyst recorded on ultrasound. The group I consisted of cyst size less than 10 mm having 73 patients.

The group II consisted of patients with cyst size 11-20mm having 39 patients; and group III patients were with cyst size 21-50mm having 12 patients. The size of epididymal cysts varied from 3 mm to 50mm. Out of 73 patients in group I, 44 (60.27%) had epididymal cyst on left side, 23 (31.51%) had on left side and in 6 patients (8.22%) epididymal cyst was bilateral. In group II, left side cyst was present in 20 (51.28%) patients; right side cyst in 16 (41.03%) patients and only 2 (16.66%) patients epididymal cyst were bilateral. In group III, 6 (50.0%) were having left sided cyst, 4 (33.34%) having right sided cyst and 2 (16.66%) having epididymal cyst on both sides. The occurrence of epididymal cyst on left, right or both sides of scrotum in each group along with percentage is depicted in Table 1.

Table 1: Distribution of epididymal cyst patients according size of cyst.

GROUP	Size of cyst	No. of patients (%)	Left	Right	Bilateral
I	<10mm	73 (58.87%)	44 (60.27%)	23 (31.51%)	6 (8.22%)
II	11 -20mm	39 (31.45%)	20 (51.28%)	16 (41.03%)	3 (7.69%)
III	21 -50mm	12 (9.68%)	6 (50.00%)	4 (33.34%)	2 (16.66%)
Total		124 (100%)	70 (56.45%)	43 (34.68%)	11 (8.87%)

Table 2: Clinical presentation of epididymal cyst patients in various groups.

Clinical presentation	Group I N (%)	Group II N (%)	Group III N (%)	Total N (%)
Scrotal swelling	11 (15.06%)	24(61.54%)	04 (33.33%)	39 (31.45%)
Orchialgia	21 (28.77%)	07 (17.95%)	04 (33.33%)	32 (25.80%)
Physical examination	05 (06.85%)	01 (02.56%)	02 (16.67%)	08 (6.45%)
Asymptomatic	36 (49.32%)	07 (17.95%)	02 (16.67%)	45 (36.30%)
	73 (100%)	39 (100%)	12 (100%)	124 (100%)

Table 3: Treatment modalities used group wise in epididymal cyst patients.

Treatment modality	Group I	Group II	Group III	Total (%)
Natural involution	70	26	0	96 (77.42%)
Aspiration	3	10	2	15 (12.01%)
Aspiration and sclerosing	0	1	2	03 (02.42%)
Surgical Excision	0	2	8	10 (08.06%)
	73	39	12	124 (100%)

The occurrence of epididymal cyst on left side was most common in all the three groups. Multiple epididymal cysts two or three in number occurred in 4 patients only. Multilocular epididymal cyst occurred in 6 patients in group II and III patients.

The most common clinical presentation in group I was asymptomatic being detected on ultrasound followed by orchialgia, scrotal swelling and detected on physical examination. In group II scrotal swelling was the most common presentation followed by orchialgia, asymptomatic presentation and detection on clinical examination. In group III, scrotal swelling and orchialgia was predominant presentation. The various clinical presentations in the three groups I - III were scrotal swelling, testicular pain or orchialgia, detection on clinical examination and ultrasound are depicted in Table 2.

Four treatment modalities were used in each group. The first modality used was wait and watch policy in hope of natural regression. The second modality was aspiration alone. The third modality used was repeat aspiration and instillation of Sodium tetradecyl sulphate, a sclerosing agent. The fourth modality used was excision of epididymal cyst in very large cysts or failure of other three modalities used in treatment. The results of different treatment modalities are shown in Table 3.

In follow-up of these patients no recurrence was seen.

DISCUSSION

Epididymal cysts are common in young adults and teenagers. The epididymal cysts are rare in children less than 12years of age. In adults more than 40years of age true epididymal cysts are uncommon as they are mostly spermatocele. Secondly, they are associated with epididymo-orchitis in these patients. For these reasons the patients with age group of 2 to 40years were included in this study. All the 124 patients were subjected to ultrasound examination. The criterion of size of epididymal was used for dividing these patients in 3 groups. The clinical presentation of these patients was in four ways; presenting as scrotal swelling, orchialgia, detected on physical examination and asymptomatic but detected on ultrasound. Asymptomatic presentation and orchialgia was the most common in group I where epididymal cyst size was less than 10mm. In group II presentation as, scrotal swelling was most common. None of the four types of clinical presentation was predominant in group III patients. Ushida H et al, reported a rare case of bilateral synchronous epididymal cysts which were multilocular arising from head, body and tail of epididymis. These cysts were of large size about 12 x 6cm on right side and 8 x 5.5cm on left side. The ultrasound reported multilocular cysts on both sides of scrotum. Preoperative diagnosis of bilateral multilocular hydrocele was made.[10] The epididymal cyst can be unilateral and unilocular or multilocular. These are commonly of less than 1cm in size. The commonest site of origin of epidiymal cyst is head of epididymis but these cysts can arise from body and tail of epididymis rarely. Multiple epididymal cysts can simulate chronic epididymitis.[11] In this study, the maximum numbers of patients were having a cyst of less than 10mm. The epididymal cyst had predominance for left side in all the 3 groups.

The acquired epididymal cysts are dilated tubules due to tubular obstruction. These tubules contain both viable and degenerating spermatozoa. A study was done to determine the cellular contents and concentrations of interleukin 6 (IL-6), interleukin 8 (IL-8) and tumour necrosis factor alpha (TNF-alpha) in epididymal fluid obtained by surgical excision of epididymal cyst. This fluid contained immature germ cells to degenerated sperms without inflammatory cells. The concentrations of

interleukin 6 (IL-6), interleukin 8 (IL-8) were more in epididymal cyst; indicating that local production of pro-inflammatory cytokines is responsible for cyst formation. The presence of this immunological activation indicates that selective surgical excision of epididymal cyst should be done in selected patients.[12]

The treatment of epididymal cyst can be based on ultrasound findings. The division of patients in 3 groups depending on cyst size is arbitrary. These patients were treated on a protocol by four methods in each group. These methods of treatment were used in various studies. Asymptomatic findings do not need surgical correction. The surgical excision of epididymal cyst particularly spermatocele may lead to epididymal obstruction resulting in infertility. Infertility aspect of epididymal cyst excision should be discussed with the patient and if required cryo-preservation of the semen should be advised prior to surgery. The surgical excision of cyst should be avoided in those patients interested in reproduction.[13]

Niedzielski et al, studied 363 patients with scrotal ultrasound, 59 of these were having Epididymal cyst detected incidentally on ultrasound examination. Out of these 59 patients; Epididymal cyst was an incidental finding on ultrasound examination in 30 patients while 29 patients had scrotal mass or pain. Young patients aged 7-18 years (47.5%) were treated by conservative treatment while rest of patients (52.5%) were treated by surgical excision. They concluded that small epididymal cyst less than 10 mm should be treated conservatively and epididymal cyst more than 10 mm which do not reduce in size should be treated by surgery.[14] In a retrospective study of 49 children epididymal cyst diagnosed and confirmed on physical examination and ultrasound. The average age of presentation was 10.7 years. The presenting symptoms were scrotal mass in 22 patients and pain in 20 patients. Seven patients could not be followed. Solitary cyst was present in 32 patients and multiple cyst were present in 10 patients. In 22 patients' cyst were present on left side of scrotum, 10 patients' right side and 4 patients both sides. They observed that in 20 patients' involution of cyst occurred in average time of 11.2 months. In 8 patients with persistent pain or non-involution of cyst, the excision of cyst was done. They concluded that conservative management of epididymal cyst is practical.[15] Homayoon et al, reviewed from the records the age and mode of presentation as well as time of complete involution of epididymal cyst in children. This study included 20 patients in whom epididymal cyst was diagnosed on scrotal ultrasound. Out of these 20 patients, 15 patients presented with scrotal mass and 4 patients with scrotal pain. The remaining one patient required surgical excision due to persistent pain. The size of the cyst was between 3 to 30mm. The mean time for complete regression of epididymal cyst was 7 months. They concluded that most of epididymal cyst involutes with time.[16]

Excision of epididymal cyst is the standard treatment but conservative approach is advised for small cysts and avoids the complication of tubular obstruction thereby infertility. A conservative approach using ultrasound guided aspiration followed by injection of 3% Polidocanol was adopted in 25 patients of epididymal cyst with success rate of 100%. Mean volume of fluid aspiration was 36ml and mean volume of sclerosing agent injection was 4.5ml. Repeat injection was required in cysts larger than 5cm in size. There were no complications. In follow-up there was no recurrence. They concluded that percutaneous sclerotherapy is a good technique to surgery of epididymal cyst.[17] Spermatic cord block anaesthesia is a very safe technique for operative procedures on testis, epidydimis or spermatic cord. It is a very safe and cost-effective technique of anaesthesia for intrascrotal surgery and can be well used as day care basis.[18] Yang et al, in a randomised study of 48 patients with epididymal cyst; first group (n=23) was operated by open epididymal cystectomy and second group (n=25) operated by minimal epididymal cystectomy with scrotoscope. The second group had shorter operative time, shorter incision and minimum blood loss. They concluded that minimal epididymal cystectomy with scrotoscope is new safe and effective technique.[19] Natural involution was most effective treatment modality in group I and group II. Aspiration was the second was most effective. Only a few patients required aspiration and sclerosing agent. Surgical excision was done in majority of group III patients and failed aspiration in group II.

CONCLUSION

The results of present study show that asymptomatic and small epididymal cyst can be cured by natural regression in 77.42%. The cysts 11 to 20mm are amenable to aspiration alone, only a few need repeat aspiration and instillation of a sclerosing agent. These conservative approaches save the cost and avoid complication of surgical excision of epididymal cyst particularly infertility. Surgical excision of epididymal cyst is reserved for non-responders to conservative treatment and epididymal cysts of very large size.

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