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RESEARCH ARTICLE

MINIMAL INCISION AND PULL THROUGH HYDROCELECTOMY- A NEWER SURGICAL MANAGEMENT OF PRIMARY VAGINAL HYDROCELE

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Key words:-
Primary Vaginal Hyrdocele, Minimal Incision, Minimal Pull Through Technique, Lesser Complications

Key Points:-

- Common Cause of Chronic Scrotal Swelling are Hydrocele
- Even though there are Advancements in Various Surgical Fields Hydrocele Surgeries Almost the same.
- Need for Minimal Invasive Technique for Hydrocele Surgeries

Abstract

Introduction: Idiopathic hydroceles are the most common cause of scrotal swellings Although benign large idiopathic hydroceles can become symptomatic and affect quality of life. Various open surgical methods have been described such as The Jaboulay Procedure. Minimal invasive approaches including sclerotherapy and tunica vaginalis fenestration have limited efficacy. This study deals with a minimal invasive surgical variant.

Materials/Patients and Methods: A total of 52 patients were operated and observed in this prospective study in the age group between 18-70 years with unilateral idiopathic primary vaginal hydrocele who underwent sac eversion with minimal separation technique posted as an elective technique. Follow up was done for 6 months.

Results: A total of 52 patients underwent minimal incision and pull through technique with the most common age group being 31 to 40 years .Post operative pain was evaluated by VAS score which showed significantly lesser score on post operative day Pain discomfort difficulty during intercourse were the major post operative complaints. No recurrence serious morbidity or mortality was seen in the study group.

Conclusion: Minimal incision and pull through technique is a good surgical technique for surgical management of primary vaginal hydrocele as the technique is easier,smaller incision, lesser time consuming and more importantly lesser post operative complications.

Introduction:-

Hydrocele is one of the commonest diseases occurring worldwide. Since olden days' surgical procedures have been described for the treatment of hydrocele. The surgical procedures commonly used for the treatment of hydrocele is the radical operation in which the parietal layer of the tunica vaginalis is completely removed and its cut edges are sutured posteriorly. The common complications observed during the surgery of hydrocele are bleeding, injury to

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the cord structures and epididymis, torsion of the testis after a faulty positioning post operatively. Adult hydrocele is an accumulation of fluid between the two layers of the tunica vaginalis due to an imbalance of the secretory and resorptive activity of the visceral and parietal layers of the tunica vaginalis, respectively.Open surgical intervention is usually curative and various techniques have been described. The Jaboulay (1902) approach of sac delivery, eversion, and plication remains the standard; however, this approach is associated with significant morbidity and complications like haematoma, infection, chronic pain, even risk of infertility, with a reported recurrence rate of 5%. Minimally invasive approaches, including sclerotherapy and tunica vaginalis fenestration, fewer complication rates but limited efficacy, with unacceptable recurrence rates requie multiple treatment. Present study deals with a minimally invasive surgical variant for the primary treatme idiopathic hydrocele. Compared to conventional surgical procedures, this technique is associated with fewer complications, appears to be an effective, well tolerated and safe alternative procedure.

Methods:-

Present study was prospective, observational study carried out on 52 patients admitted in Department of Surgery, MahadevappaRampure Medical College, Kalaburgi between January 2021 to December 2021. **Inclusion criteria**: Male patients 18-70 years, with unilateral (idiopathic) primary vaginal hydrocele, underwent surgery for hydrocele by sac eversion with minimal separation technique, willing to participate and follow up.

Exclusion criteria:

1.Patients with suspected clinical or ultrasonographic findings of testicular tumor, associated scrotal or inguinal lesions
2.Previous history of ipsilateral scrotal or inguinal surgery
3.Previous inguinal radiotherapy
4.Hypoalbuminemia
5.Non-transilluminated hydroceles

A written informed consent was taken from patients. Patients underwent detailed history taking, local and systemic clinical examination, laboratory and radiological investigations (CBC, urine routine/microscopy, LFT, RFT, chest Xray, if required USG abdomen and pelvis). Preoperative fitness was done and patients were posted for elective surgery for hydrocele by 1- 1.5cm minimal incision and pull through hydrocelectomy under cord block/spinal anesthesia. Standard postoperative care was provided. Post-operative pain was evaluated by VAS (visual analog score). Patient details, operative notes, postoperative course, complications (pain, fever, secondary hemorrhage, hematoma, scrotal Oedema, wound infection, pyocele, orchitis) were noted proforma. Follow up was kept for 3 months.

Operative Tecnique

Place the scrotum on stretch. Using the scalpel, make a 2-3cm incision along the midline raphe.

Using electrocautery, dissect down but not into the anterior hydrocele wall Make a stab incision on the anterior hydrocele wall (avoiding the testis) and drain the fluid

Apply two hemostat clips on either edge of the incised hydrocele wall Lifting the hemostats, use electrocautery to incise the hydrocele sac rostrally until the anterior wall of the hydrocele is fully incised.

The incision may be extended into the inguinal region as far as practically possible, retracting the scrotal skin with cats paw retractors

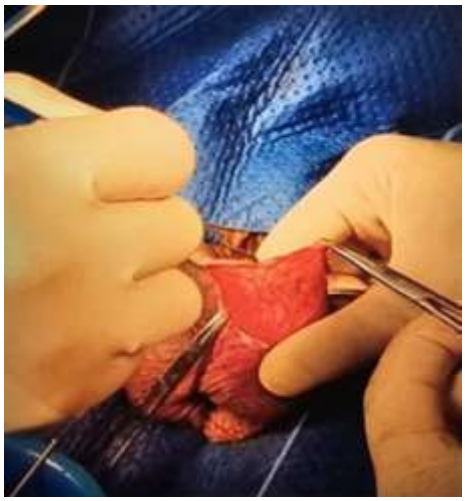
Perform the same manoeuvre caudally, incising the hydrocele sac to just before the epididymal tail Deliver the testicle out of the wound and the hydrocele sac will evert

2-3 incision along the scrotal midline raphe

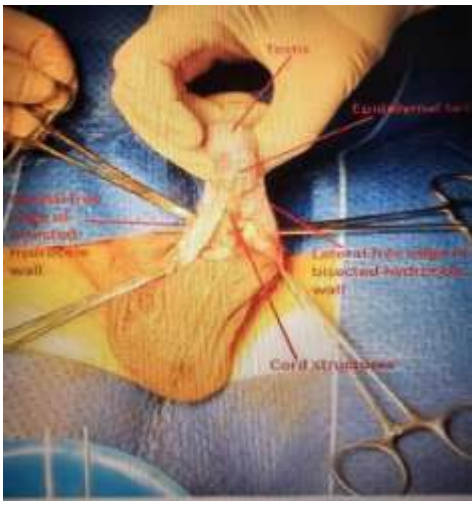
A Stab incision made on the anterior hydrocele wall to allow drainage of the hydrocele fluid

Two hemostat clips applied to either edge of the incised hydrocele wall for control and manipulation of the hydrocele sac.

Electrocautery division of the anterior hydrocele sac rostrally



Electrocautery division of the anterior hydrocele sac caudally



Deliver the testicle out of the wound

Plication of the everted edges of the hydrocele posterior to the epididymal tail

Layered closure of the scrotal incision

Plicate the everted free edges of the hydrocele posterior to the epididymal tail with a tight hemostatic running 2-0 Vicryl suture on a tapered needle.

Continue the plication proximally to the spermatic cord base (snug but not too tight).

Close the scrotum in layers (3-0 Vicryl on tapered needle for dartos and 4-0 Monocryl on cutting needle to skin) Apply dressing and scrotal support.

Results:-

During study period total 52 patients underwent hydrocele treatment by minimal incision and pull through technique. Most common age group was 31-40 years (35%), followed by 41-50 years (27%) age group

Age(in years)	No of patients	Percentage(%)
19-30	8	15
31-40	18	35
41-50	14	27
51-60	8	15
61-70	4	8

Pain, discomfort, difficulty during intercourse, cosmetic discomfort were main complaints. Patients had symptoms from 1-2 years in 35% and for less than 1 year in 43%

Duration of symptoms	No of patients	Percentage(%)
0-6 months	8	15

7-12 months	**14**	**27**
1-2 years	**18**	**35**
2-5 years	**8**	**15**
>5 years	**4**	**7**

Post-operative pain was evaluated by VAS score. Significantly less score was noted on post-operative day 3.

Post operative Pain	**VAS score(mean +/- SD)**
At 12 hrs	5.3 +/- 2.3
At 24 hrs	4.9 +/- 1.9
On day 2	3.2 +/- 1.4
On day 3	2.8 +/- 1.1

• Fever (7.6%), wound infection (3.8%), scrotal edema (3.8%), hematoma (0%) and scrotal induration (3.8%) were main post-operative complications noted. All these complications were managed conservatively. No recurrence, serious morbidity or mortality noted in study patients.

Post operative complications	**No.of patients**	**Percentage(%)**
Fever	**4**	**7.6**
Wound Infection	**2**	**3.8**
Scrotal edema	**2**	**3.8**
Haematoma	**0**	**0**
Scrotal Induration	**2**	**3.8**

Discussion:-

• A primary hydrocele causes a painless enlargement in the scrotum on the affected side and is thought to be due to the defective absorption of fluid secreted between the two layers of the tunica vaginalis (investing membrane).

• A secondary hydrocele is secondary to either inflammation or a neoplasm in the testis.

• Factors such as increased serous fluid secretion, absence of efferent lymphatics, and insufficient reabsorption of fluid secreted by the mesothelium are conceivable clarifications.

• Other than idiopathic, causes are infection, infarction, torsion, tumors, radiotherapy, tuberculosis, or filariasis

• It affects about 1% of adult men, and the adult type of hydrocele is seen mostly in men older than 40 years.

• Surgeries, such as laparoscopic varicocelectomy, can either partially or completely disrupt testicular lymphatic drainage, which leads to the postoperative complication of hydrocele

• Indications for treating a hydrocele include pain, the cosmetic appearance of the scrotum, or the patient's preference

• The conservative management of a hydrocele includes observation, aspiration, and the most preferred one, sclerotherapy and which can be opted in patients with small to moderate hydrocele, who are unwilling to undergo surgery, or poor surgical candidates.

• Surgical excision and eversion of the sac still remains the conventional and preferred treatment for an idiopathic hydrocele.

• The main drawback of hydrocelectomy is its postoperative complications.

• Postoperative complications include scrotal edema, hematoma, chronic pain, decreased fertility, persistent swelling, Fournier's gangrene and infection

• The most common complications following scrotal surgery for hydrocele are persistent scrotal swelling and hardening while with minimally access procedures, the scrotal swelling and hardening are much less than the eversion-excision hydrocelectomy

• Minimal access hydrocelectomy is a suggested alternative because it is less invasive and involves a smaller incision

• The operative time is quick (12–18 minutes) and recovery time is shortened in comparison with a traditional hydrocelectomy.

• Conventional surgery for hydrocele or less-invasive hydrocelectomy invites edema and hematoma owing to the tissue handling and dissection and has not been related to the length of the scrotal skin incision.

• Sclerotherapy can be recommended as a first option for treatment of primary vaginal hydrocoele with size less than 15cm in the largest diameter and those not willing for surgical procedure, most useful in older men who are unfit for surgery due to co-morbid conditions.

• Limitations of present study were small sample size, lack of comparison, single institution study.

Conclusion:-

• For surgical treatment of primary vaginal hydrocele Minimal incision and pull through technique is a good surgical technique.

• This technique is easier, simpler, requires small incision, can be done under local anesthesia, less time consuming and with minimal post-operative complications.

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