

To Evaluate the Efficacy of Bi Pedicled Strip of External Oblique Aponeurosis for Augmentation of Posterior Wall of Inguinal Canal in Inguinal Hernia Repair

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ABSTRACT

Introduction: In Homo sapiens and other mammalian quadrupeds, there is an absence of posterior rectus sheath below the arcuate line and insubstantial transversalis fascia in groin. This anatomical arrangement presents no particular functional, anatomic difficulty for quadrupeds as their inguinal canal is directed uphill during ambulation and therefore is not subjected to significant gravitational stress. Aims and objectives: To evaluate the efficacy of bipedicled strip of external oblique aponeurosis for augmentation of posterior wall of inguinal canal in inguinal hernia repair.

Material and methods: This study was carried out on fifty consecutive patients of inguinal hernia admitted in the Surgery Department of Guru Nanak Dev Hospital attached to Government Medical College, Amritsar.

Conclusion: The present study was an attempt to evaluate the role of bipedicled strip of external oblique aponeurosis in augmentation of posterior wall of inguinal canal in inguinal hernia repair. Our findings suggest that the bipedicled undetached strip of external oblique aponeurosis is as efficient as a synthetic mesh in inguinal hernia repair. This repair is also economically more beneficial for poor patients who cannot afford to have mesh repair. Although the present study is small and follow up period is short but we still recommend this procedure as a good alternative to Modified Bassini's, Shouldice repair and mesh based repairs.

Keywords: Arcuate, Bipedicled, Transversalis

a preformed sac or processus vaginalis in the former and the failure of the shutter action of the transversus abdominis aponeurotic arch in the latter.

Study aimed to evaluate the efficacy of bipedicled strip of external oblique aponeurosis for augmentation of posterior wall of inguinal canal in inguinal hernia repair.

MATERIAL AND METHODS

This study was carried out on fifty consecutive patients of inguinal hernia admitted in the Surgery Department of Guru Nanak Dev Hospital attached to Government Medical College, Amritsar.

Inguinal hernias in infants and children, patients with recurrent hernia, patients having bilateral hernias, patients failing anaesthetic fitness, patients with persistent cause predisposing to hernia like staining due to persistent cough, chronic constipation, bladder outflow obstructive symptoms were excluded from the study.

After admission, a detailed clinical evaluation of each patient was carried out including thorough history, clinical examination and relevant investigations. All hernia repairs were performed under spinal anaesthesia by the consultant surgeon. One shot of intravenous antibiotic (Cefotaxime 1 gm) was given at the time of induction of anaesthesia. Same antibiotic in the same dosage was repeated after the 12 hours.

RESULTS

The present study was planned to evaluate the efficacy of operative technique using an undetached strip of external oblique aponeurosis for augmentation of posterior wall

INTRODUCTION

In Homo sapiens and other mammalian quadrupeds, there is an absence of posterior rectus sheath below the arcuate line and insubstantial transversalis fascia in groin. This anatomical arrangement presents no particular functional, anatomic difficulty for quadrupeds as their inguinal canal is directed uphill during ambulation and therefore is not subjected to significant gravitational stress. In humans however gravitational stress necessitated by erect posture including the weight of the intraabdominal organs is directed towards the lower abdomen, considerably amplifies the intrinsic anatomic weakness. It allows a significant number of pathologic inguinal hernias both direct and indirect to become clinically manifest. Thus the lack of the evolutionary development, strong posterior rectus sheath and transversalis fascia in lower abdomen is thought to represent a significant specific anatomic effect in the evolution of mankind.

Both indirect and direct inguinal hernias are considered to originate from congenital variants such as the presence of

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of inguinal canal in inguinal hernia repair. The study was conducted on fifty consecutive patients of inguinal hernia in the Department of Surgery, Guru Nanak Dev Hospital attached to Govt. Medical College, Amritsar. Modified herniorrhaphy was done in 50 patients. After the completion of the study, the findings were compiled and following observations were made.

All the 50 patients of inguinal hernia in this study were males and no female case was reported.

The age of the patients ranged from 20 to 60 years. In 11-20 year age group, total 3 patients were having hernia and all were having indirect hernias. Similarly in the age group of 21-30 years total 8 patients were having hernia and all were having indirect hernia and the number of patients was almost equal in rest of decades. In the study of fifty patients, 3 patients were having pantaloon hernia of which one each was in 4th / 5th and 6th decades. 7 patients of indirect inguinal hernia had complete hernia (reaching upto the scrotum).

According to the occupational status, 35 cases of inguinal hernia were involved in jobs requiring hard physical exertion. 4 were doing moderate physical exertion and 11 were involved in sedentary jobs. 21 of fifty patients were smokers.

The patients with persistent cause predisposing to hernia like straining due to chronic constipation, chronic cough, bladder outflow obstruction symptoms were already excluded from the study. Patients with recurrent hernias were also excluded from the study.

Time taken from skin incision to skin closure was recorded. Twelve patients were operated within 20 minutes, eight patients within 21-25 minutes and thirteen patients were operated in 26-30 minutes. It shows that 33 patients were operated within half an hour. Longest time was 56-60 minutes in two patients.

In one patient there was tension at repair of posterior wall during surgery so release incision in conjoined tendon was given and tension free repair was completed. In one patient the EOA was thinned out there was difficulty in closure of upper and lower leaf.

Contents of the sac

In twenty five patients out of fifty patients the inguinal hernia sac was empty. In eighteen patients omentum was present as hernial contents and in rest seven patients small gut was present.

Postoperative pain

Patients were given instructions preoperatively about assessment of their pain. This was assessed separately on the day of surgery, on the first postoperative day and at the time of discharge. The intensity of pain was measured on a 4-point verbal scoring scale.

4-Point verbal scoring scale

Patients were asked to grade their pain on the day of surgery, on the first postoperative day and on the day of discharge as 'no pain, mild pain, moderate pain and severe pain' (0,1, 2,3 respectively) and observation were recorded.

2 patients were discharged on 1st postoperative day. Twenty

seven patients were discharged on 2nd postoperative day, eighteen patients on 3rd postoperative day and three patients were kept for four days in postoperative period.

DISCUSSION

By analyzing the various techniques of herniorrhaphy along multiple outcome variables, many authors suggest that mesh based repair offers the best alternative when compared to sutured or laparoscopic technique.^{1,2} Despite excellent results of mesh based repair critics of mesh repair still exist. The main issues are the increased risk of infection and repulsion with a placement of foreign body, the cost of the mesh and expertise required to place the mesh.

Occupation

Seventy percent cases were involved in occupations requiring hard physical exertion. Hard physical workers include labourer, farmers and rickshaw pullers.³ Hard physical exertion causes repeated elevations in intra-abdominal pressure, thus facilitating the development of inguinal hernia. In this study 35 cases are hard physical workers, 4 are doing moderate exertion and rest 11 are involved in sedentary jobs.^{4,5}

Twenty one patients out of fifty patients in this study had smoking habits. It has been already discussed that smoking is related with increased chances of cough and herniation so all patients were advised to leave the smoking habits.

Side of inguinal hernia

Right sided inguinal hernias are more common normally because of deferred descent of right testis. In this study also the right sided inguinal hernias are present in 74 percent of the cases and left sided in 26 percent cases.^{6,7} Study conducted by B.S. Sidhu et al also shows that right sided inguinal hernias are more common. In this study of fifty patients 30 patients were having right sided inguinal hernia, 18 had left sided and rest 2 patients had bilateral inguinal hernia. Bilateral inguinal hernias were excluded in our study.

Operative time

The range of operative time is 20-60 minutes. The mean total time taken for the operation in the study is 31 minutes. The speed of surgery went increasing with the experience of the technique and the number of cases.⁸ The cases in which the hernial sac was empty, took less operative time than the other cases in which the contents of the sac were either gut or omentum.

Perioperative difficulties and complications

In one patient there was tension at repair of posterior wall during surgery so release incision in conjoined tendon was given and tension free repair was completed. In one patient there was difficulty in approximation of upper and lower leaf of EOA because of thinning of external oblique aponeurosis.^{9,10}

Urinary Retention

Postoperative urinary retention is a known complication of inguinal herniorrhaphy and the factors attributed to its etiology are pain and stress following surgery. The incidence of urinary retention in inguinal herniorrhaphy

under local anaesthesia is 6.2% and spinal anaesthesia is around 16.2%.¹¹ The problem may be aggravated by the preoperative administration of atropine like agents and prolonged recovery from anaesthesia. In the present study, 16 patients had difficulty in urination. Twelve patients out of these passed urine after encouragement, upright posture, hot water bottle placement over lower abdomen, providing privacy and running water but four patients did not pass urine and they were catheterized. In the follow up none of these patients developed urinary tract infection.¹²

One patient complained of pain in ipsilateral inguino-scrotal region at 3rd week of follow up. Local ilio-inguinal block with 2ml of 0.5% bupivacaine resulted in complete resolution of pain. The pain was attributed to the entrapment of the ilioinguinal nerve in the edematous tissue.¹³ He was given firm reassurance and analgesics on as and when required basis. The patient reported complete resolution of pain at 3 months follow up.¹⁴

CONCLUSION

Incidence of inguinal hernia is more in males. Incidence of direct inguinal hernia is more in older age group and indirect inguinal hernia is more in younger age group. Mean operative time in the study was 31 minutes (range 20-60 minutes). Mean pain score in the study was 2.4, 1.7 and 0.8 on the day of surgery, 1st postoperative day and 2nd postoperative day respectively. Sixteen patients had difficulty in micturition in the immediate postoperative period; four patients ultimately required catheterization. Two patients had cellulitis at suture line that resolved with antibiotics. One patient had scrotal edema that resolved with scrotal support.

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