

# Postoperative Seroma Collection in Operated Case of TAPP Hernioplasty in Unilateral Inguinoscrotal Hernia

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## ABSTRACT

**Introduction:** Repair of inguinal hernia is one of the commonest performed surgical procedures worldwide. Usually, a seroma develops in large inguinoscrotal hernias. Generally, a seroma is a cause of significant distress for the patient since it may recur. If the possibility of seroma formation is discussed with the patient before surgery, it may go a long way in alleviating the patient's distress. Seromas are common after large hernia repair and direct hernia repair.

**Materials and methods:** In this observational study, 50 patients were randomly selected from LG. Hospital (AMC MET Medical College, Ahmedabad, India) who went through TAPP hernioplasty for an inguinoscrotal hernia after a complete explanation of conversion to open as well as post-operative seroma formation. Since all cases were indoor patients, they were initially reviewed on the next day morning after the operation and the next examination time point was seven days later for seroma development. All the patients were followed up at 6 weeks and then every month for 6 months up to 1 year.

**Results:** Out of 50 patients, 44 (88%) patients had an indirect hernia and 6 (12%) patients had a direct hernia. The seroma developed in only three patients (6%) who were managed conservatively with only medicines. Within the follow-up period, no patients had pain, seroma, and recurrence.

**Conclusion:** In some cases of large scrotal hernia, the distal sac was difficult to be inverted or the hernia sac even adhered firmly to the ipsilateral testicle and other structures. In those cases, avoiding inverting the distal sac and leaving the distal sac in place means to avoid dissecting out the distal sac observed lesser occurrence of the seroma. That suggests that the laparoscopic method can help prevent or decrease the chance of the development of seroma in the unilateral inguinoscrotal hernia.

**Keywords:** Hernia, Hernioplasty, Inguinoscrotal hernia, Laparoscopy, Laparoscopic hernia repair, Laparoscopic inguinal hernia repair, Seroma, Transabdominal preperitoneal.

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## INTRODUCTION

Repair of inguinal hernia is one of the commonest surgical procedures performed worldwide. The lifelong risk for males is 27% against 3% for females.<sup>1</sup> Since Bassini published his landmark paper about the manner of tissue repair in 1887, numerous modifications have been proposed. Shouldice four-layer inguinal hernia repair technique enjoyed extensive popularity before the idea of prosthetic material was introduced. Hence, tissue repair may be the commonest type of hernia repair in the developing world. But, with tissue repair comes the manipulation of the tissue, which can lead to the increased risk of seroma formation.

There has been a revolution in surgical procedures for groin hernia repairs after the introduction of laparoscopy. Ger documented the first laparoscopic hernia repair in 1982 by approximating the internal ring with stainless steel clips.<sup>2</sup> Since then, laparoscopic trans-abdominal preperitoneal repair (TAPP) is an increasingly innovative technique within hernia surgery and is now equally effective in preventing recurrence. The TAPP approach of laparoscopic hernia repair replicates the concept of Stoppa repair. The benefits of laparoscopic repair include the reduced incidence of recurrence similar to as noticed using the Stoppa technique that has the advantages of lesser pain, reduced discomfort, less tissue dissection, and manipulation, short hospital stay, and earlier resumption of normal daily activities.

Usually, seroma develops in the large inguinoscrotal hernias.<sup>2</sup> Seroma generally is a cause of significant distress for the patient, since it may recur frequently. If the possibility of seroma formation

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is discussed with the patient before surgery, it can significantly reduce patients' distress. The occurrence of seromas is common after large hernia and direct hernia repair.<sup>2-4</sup> Seroma formation is very common throughout the learning phase and decreases with increasing experience. TAPP techniques are the most widely adopted laparoscopic procedures for inguinal hernia repair with favorable clinical outcomes, such as shorter hospital stay, minimal postoperative pain, and decreased surgical site infection (SSI). However, seroma formation is the most frequent complication after laparoscopic repair.<sup>2,5</sup> In this study, we aimed to study the occurrence of seroma formation in operated cases of unilateral inguinoscrotal hernia by laparoscopic methods.

## AIMS AND OBJECTIVES

To evaluate the incidence of postoperative seroma collection in TAPP hernioplasty in inguinoscrotal hernia in our surgical department at AMC MET Medical College and LG hospital, Ahmedabad.

## MATERIALS AND METHODS

In this prospective observational study, 50 patients were randomly selected from LG. General Hospital, AMC MET Medical College, Ahmedabad, India from May 2018 to May 2019.

### Inclusion Criteria

- Unilateral inguinoscrotal hernia going beyond the root of the scrotum in patients admitted to the Department of Surgery.
- Patients who were willing to give informed consent for laparoscopic TAPP hernioplasty repair.

### Exclusion Criteria

- Patient's age >65 years.
- Patient's age <18 years.
- Laparoscopic TAPP converted to open hernioplasty.
- Inguinal hernia.

All patients went through TAPP hernioplasty for an inguinoscrotal hernia after a complete explanation of conversion to open as well as postoperative seroma formation; which is usually 5–25%. Gentle careful dissection and perfect hemostasis were attempted. The pseudosac was tacked toward the pubic bone with two or three tacks in a large direct hernia to avoid seroma formation. In indirect hernia, meticulous dissection was done at the deep inguinal ring to skeletonize the sac from cord structures. Nontraumatic graspers were used to dissect the planes to keep the dissection field blood-free. We did not invert or dissect out the whole distal sac in the indirect inguinoscrotal hernia. Instead, the distal sac was left intact in place without closing the proximal end of the distal sac. The lower edge of the distal sac was lifted and fixed to the posterior abdominal wall in the site lateral and cranial to the internal ring. The scrotum was to be completely deflated before taking the ports out. Scrotal support was applied for the first 48 hours to prevent their formation. There is a need to reassure a patient regarding the time-bound self-resolution of the swelling. Though it may not resolve in 8 weeks, it might be aspirated under aseptic precautions.

Since all cases were indoor patients, they were initially reviewed the next day morning after the operation and the next examination time point was 7 days later for seroma development in OPD clinics. All patients were advised to return to the clinic in case of delayed complications or any unexpected problems, especially chronic pain and groin swelling. All the patients were followed up at 6 weeks for recurrence (any cough impulse) or any other complication. Then they are instructed to follow up every month for 6 months.

## RESULTS

A total of 50 operated cases of unilateral laparoscopic TAPP inguinoscrotal hernioplasty were included in the study.

Out of 50 patients, 44 (88%) patients were operated on for indirect inguinoscrotal and 6 (12%) patients were operated on for a direct inguinoscrotal hernia.

Only three (6%) patients developed clinically detectable seroma during the follow-up period (pod-2), as revealed by their physical

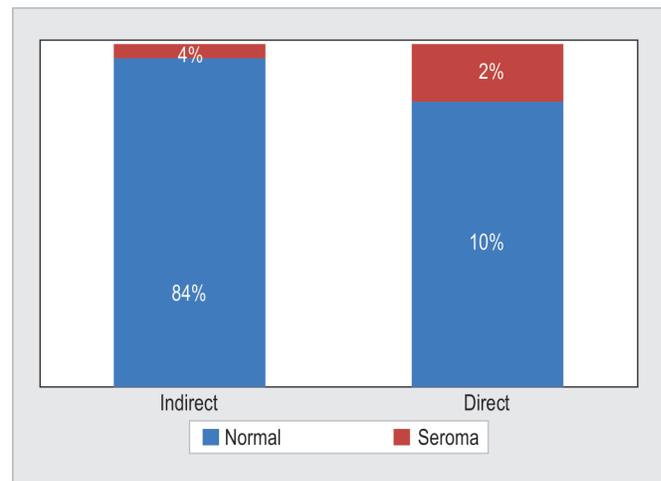
examination. Among three patients, two were operated upon for an indirect hernia and the other one was treated for a direct hernia (Table 1).

All three patients were given chemotherapy (Seratopeptidase and Chymotrypsin tablets) and scrotal support was continued. In one of the patients with a direct hernia, seroma collection was resolved postoperatively on day 7. Another patient of indirect hernia, seroma collection was resolved on day 6 postoperatively, and the third patient after 30 days by postoperatively.

Moreover, 47 (94%) patients felt only slight pain the next morning after the operation, the pain became minimal 7 days later, and no chronic pain or neurological pain was recorded. All patients without complications were discharged. During the follow-up period (1–12 months), no pain, seroma, and recurrence were reported by the discharged patients (Fig. 1).

**Table 1:** Development of seroma in direct and indirect hernia repair by TAPP

	Direct inguinoscrotal hernia	Indirect inguinoscrotal hernia	Total (N = 50)
No. of operated cases	6 (12%)	44 (88%)	50 (100%)
Seroma development	1 (2%)	2 (4%)	3 (6%)



**Fig. 1:** Development of seroma in direct and indirect hernia repair by TAPP (N = 50)

## DISCUSSION

Several kinds of procedures have been described in the literature to address the problem of seroma formation, including the use of external compression, the application of fibrin sealant in the preperitoneal space,<sup>6</sup> and dwelling a closed-suction drain in the preperitoneal space.<sup>7</sup> Furthermore, the placement of drainage was with a potential risk of iatrogenic infection and could only be placed for a short period. The pressure dressing is usually difficult to apply over the groin region. Nevertheless, the optimal management of the distal sac is still debated, though some studies have supported

the complete dissection of the sac to avoid seroma formation,<sup>8,9</sup> however, this complete dissection may be difficult in certain cases and carry the risk of injury to adjacent vasculature.

Reddy et al.<sup>10</sup> reported a method of inversion and staple fixation of the lax transversalis fascia to Cooper's ligament, which reduced the incidence of seroma formation after laparoscopic repair of direct inguinal hernia. However, these approaches did not apply to the indirect hernia, since there is no lax transversalis fascia for management in the indirect hernia. Interestingly, Daes reported a method of pulling up the distal hernia sac out of the scrotum and fixing it to the posterior abdominal and reported a low incidence of clinically significant seroma in indirect inguinoscrotal hernia repair.<sup>11</sup>

Various incidences of seroma formation have been reported in the literature, and the increased frequency and volume of seroma formation were associated with large or inguinoscrotal hernias. Lau and Lee reported a seroma rate of 5.7% in nonscrotal hernias and the rate increased to 22.9% in scrotal hernias following laparoscopic hernioplasty.<sup>8</sup> This finding differs from our result where postoperative seroma collection was noted around six percentages.

## CONCLUSION

In some cases of large scrotal hernia, the distal sac was difficult to be inverted or the hernia sac even adhered firmly to the ipsilateral testicle and other structures. Besides, the use of Protack™ in the Daes approach also significantly increases the whole cost of the hernia repair procedure. Thus, in this study, we did not invert the distal sac but left the distal sac in place. Our method has the advantage that we can avoid dissecting out the distal sac. Since the potential space localized behind the mesh extending into the scrotum is one of the main causes of the annoying seroma, our technique prevents the inflow of any exudation and fluid generated in the preperitoneal space during and after operation into the distal hernia sac in the scrotum. Furthermore, the distal hernia sac was not completely closed, since the upper edge of the sac was not sutured, thereby preventing the potential fluid collection from the secretion of the distal sac itself. Another advantage of this method is that leaving the distal sac undissected minimized the risks of damage to the cord structures.

In our study, we observed less occurrence of the seroma. That suggests that the laparoscopic method can help prevent or

decrease the chance of the development of seroma in the unilateral inguinoscrotal hernia.

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