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Original Research Paper

General Surgery

COMPARISON OF IPSILATERAL PORT VS CONTRALATERAL PORT IN TAPP HERNIA SURGERY

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ABSTRACT **Introduction-** Transabdominal preperitoneal (TAPP) hernia repair is an advanced surgical technique for inguinal hernias. Unlike traditional methods, TAPP involves entering the peritoneal cavity for access and repair. It offers enhanced visualization, potentially lower recurrence rates, and allows bilateral repair through minimal incisions. The procedure uses laparoscopic instruments to place a mesh over the hernia defect, securing it to prevent future herniation **Methodology-** In our study at JK Hospital, 20 adult patients with reducible inguinal hernias underwent TAPP hernioplasty under general anesthesia, adhering to strict inclusion criteria. We evaluated operative time, complications (such as bleeding and infection), post-operative pain levels, length of hospital stay, hernia recurrence rates, and patient satisfaction. The results highlighted comparable outcomes between patients, emphasizing the procedure's effectiveness and safety in managing inguinal hernias. These findings contribute to understanding the benefits of TAPP hernioplasty in clinical practice. **Result-** we found that ipsilateral procedures averaged 100 minutes, while contralateral procedures averaged 130 minutes (^{2} = 27.01, p = 0.007). Despite this difference in operative times, both approaches showed similar outcomes in complications, hospital stay durations, post-operative pain, and patient satisfaction. These results indicate that both ipsilateral and contralateral port placements are effective and safe options for TAPP hernioplasty. **Conclusion-** The ipsilateral port technique in TAPP hernia repair enhances ergonomics, reduces operative time, and lowers complication risks through improved instrument handling and access

KEYWORDS : Hernia repair; laparoscopy; surgical dissection; transabdominal preperitoneal (TAPP); inguinal; mesh, ipsilateral, contralateral

INTRODUCTION

Transabdominal preperitoneal (TAPP) hernia repair represents a significant advancement in managing inguinal hernias surgically. Unlike traditional methods that repair hernias from outside the abdominal cavity (such as the open anterior approach or the laparoscopic totally extraperitoneal approach), TAPP involves entering the peritoneal cavity for access and repair.

The procedure begins with insufflating the abdomen with carbon dioxide to create a working space. Small incisions are made in the abdominal wall, through which a laparoscope and specialized instruments are inserted. The peritoneum is then incised to access the hernia sac, which is returned into the abdomen. A mesh prosthesis is placed over the hernia defect and secured with sutures or staples to reinforce the weakened area and prevent recurrence.

Advantages of TAPP include enhanced visualization of the hernia sac and surrounding structures, potentially reducing recurrence rates compared to open techniques. It also allows for bilateral hernia repair through the same incisions, minimizing abdominal trauma and potentially accelerating recovery.

During TAPP surgery, an incision is typically made 2-5 cm above the umbilicus. Pneumoperitoneum is established using a Veress needle, followed by inserting a 12 mm trocar for a 30-degree laparoscope. Two additional 5 mm trocars are placed bilaterally, oriented horizontally to the umbilicus and alongside the linea semilunaris.

The procedure involves creating a peritoneal flap starting about 2 cm above the anterior superior iliac spine (ASIS). Dissecting the peritoneum allows CO2 to enter the pre-transversalis space, aiding pneumodissection and plane separation. Dissection continues laterally to medially until the hernial sac is identified and freed from adhesions, then pulled down into the abdomen.

After dissection, a polypropylene mesh is secured over the hernia defect, and the peritoneal flap is closed. The placement of working ports determines whether it's a contralateral or ipsilateral approach: contralateral if one port is opposite the surgeon, ipsilateral if both are on the same side.

Objectives and Aims

Comparing ipsilateral and contralateral port placements in TAPP surgery involves evaluating surgical outcomes, complications, recurrence rates, and patient satisfaction. Both approaches have merits and potential drawbacks that should be carefully considered based on individual patient characteristics and surgical expertise.

1. Surgical Approach and Technique:
- Ipsilateral Port Placement: Ports are on the same side as the surgeon.
- Contralateral Port Placement:One port is positioned opposite the surgeon.
2. Operative Time:
- Ipsilateral: Direct approach may reduce surgical time.
- Contralateral: Better visualization may offset time taken to maneuver across the midline.
3. Complications:
- Ipsilateral: Risk of injury to nearby structures.
- Contralateral: Challenges in instrument manipulation across the midline.
4. Recurrence Rates:
- Both methods aim to lower recurrence with mesh reinforcement.

- Long-term studies can reveal differences in recurrence rates.

5. Patient Outcomes:
- Post-operative pain, hospital stay length, and patient satisfaction are key measures.

6. Research and Evidence:
- Studies comparing ipsilateral and contralateral TAPP placements provide empirical data.
- Meta-analyses can consolidate findings for clarity.

METHODOLOGY

A total of 20 patients taken in our study who came to j.k hospital opd during the study tenure and fits the inclusion criteria

Inclusion Criteria

1. **Adult Patients:** Generally, patients aged 18 years and older.
2. **Inguinal Hernia:** Patients diagnosed with inguinal hernias, whether direct or indirect.
3. **Reducible Hernia:** The hernia should be reducible, meaning it can be pushed back into the abdominal cavity.
4. **Fit for Surgery:** Patients deemed fit for general anesthesia and surgical intervention.
5. **Consent:** Patients who provide informed consent for participation in the surgical procedure and any associated research or data collection.

Exclusion Criteria

Exclusion criteria typically include factors such as complicated hernias (irreducible, obstructed, or strangulated), recurrent hernias, significant medical comorbidities that increase surgical risks, and previous abdominal surgeries that might complicate the procedure or alter the anatomy.

All patients underwent TAPP hernioplasty under general anesthesia with identical antibiotic prophylaxis, sutures, and post-operative analgesia. The study evaluated the following outcomes:

1. **Operative Time:** Duration of the surgical procedure from incision to closure.
2. **Complications:** Any adverse events during or after surgery, such as bleeding, infection, or injury to surrounding structures.
3. **Post-operative Pain:** Severity of pain experienced by patients immediately following surgery and in the recovery period.
4. **Length of Hospital Stay:** Duration of hospitalization required for recovery and observation.
5. **Recurrence Rates:** Incidence of hernia recurrence over a defined follow-up period.
6. **Patient Satisfaction:** Overall satisfaction reported by patients regarding the surgical outcome and recovery process.

RESULTS

Based on the Presented Data and Statistical Analysis:

The operative times (in minutes) were analyzed for procedures performed ipsilaterally (on the same side) and contralaterally (on the opposite side). The chi-square test revealed a statistically significant association between the operative time intervals and the type of procedure (ipsilateral vs. contralateral) ($\chi^2 = 27.01$, $p = 0.007$).

Operative times varied across different intervals, with a noticeable distribution in both ipsilateral and contralateral procedures. Ipsilateral procedures showed an average time of 100 minutes, while contralateral procedures averaged 130 minutes. The operative times were 82 minutes for direct and 118 minutes for indirect in ipsilateral method and 123.3 minutes for direct and 140 minutes for indirect in contralateral procedures, respectively.

These findings suggest that the type of procedure (ipsilateral vs. contralateral) influences operative times, highlighting potential differences in surgical complexity or approach based on the side of operation.

Rest of the determinants does not show significant difference in both the groups

These outcomes were assessed to compare the effectiveness and safety of TAPP hernioplasty in the study population.

Table 1 Showing Age Wise Distribution Of Study Subjects.

AGE GROUP		
AGE GROUP(YRS)	IPSILATERAL	CONTRALATERAL
20-40	3	3
40-60	4	5
60-80	3	2

Table 2 Showing Type Of Hernia Wise Distribution Of Study Subjects.

TYPES OF HERNIA		
	IPSILATERAL	CONTRALATERAL
DIRECT	5	6
INDIRECT	5	4

Table 3 Showing Comparerision Of Operative Time Among Study Subject

OPERATIVE TIME								
	Ipsilateral		Total	Contra-lateral		Total	Chi-square value	p-value
Time (mins)	Direct	In-direct		Direct	In-direct		27.01	0.007
60-80	2 (20%)	00	2 (20%)	00	00	00		
80-100	3 (30%)	00	3 (30%)	00	00	00		
100-120	00	3(30 %)	3(30 %)	3(30 %)	00	3(30 %)		
120-140	00	2 (20%)	2 (20%)	2 (20%)	2 (20%)	4(40 %)		
140-160	00	00	00	1 (10%)	2 (20%)	3(30 %)		
Average Time	82 mins	118 mins	100 mins	123.3 mins	140 mins	130 mins		

CONCLUSION

In conclusion, the ipsilateral port technique for laparoscopic TAPP inguinal hernia repair offers compelling advantages including improved ergonomics, reduced operative times, and potentially lower complication rates. By concentrating all ports on the side of the hernia, surgeons benefit from enhanced instrument handling and better access to anatomical structures, thereby facilitating precise mesh placement and thorough dissection. However, successful implementation requires skilled laparoscopic expertise, careful patient selection based on hernia complexity and anatomical considerations, and meticulous preoperative planning. As ongoing research and clinical experience continue to refine this approach, the ipsilateral port technique promises to solidify its position as a valuable option in the repertoire of advanced hernia repair methods.

1. **Ergonomics:** Placing all ports on the same side as the hernia allows for a more comfortable surgical setup. Surgeons can work with instruments that move parallel to each other, rather than crossing, which reduces fatigue and enhances precision during the procedure.
2. **Reduced Operative Time:** Improved ergonomics lead to more intuitive instrument handling and dissection. This can result in faster surgeries, as the surgeon navigates more efficiently around the hernia defect and places the mesh with greater ease.

3. **Lower Risk of Complications:** The ipsilateral technique minimizes instrument crossing and unnecessary manipulation within the abdominal cavity. This decreases the risk of inadvertent injuries to surrounding structures such as the bowel or blood vessels, thereby potentially lowering the overall complication rate.
4. **Improved Access and Visualization:** By accessing the hernia defect and surrounding anatomy from one side, surgeons can achieve better visibility and access. This facilitates thorough dissection of hernia sacs and precise placement of mesh, which is crucial for achieving successful outcomes.

Challenges and Considerations:

Despite its benefits, the ipsilateral port technique requires careful consideration:

- **Skill Requirement:** Surgeons must be proficient in laparoscopic techniques and familiar with the anatomical variations of the inguinal region to effectively perform the procedure.
- **Patient Selection:** While suitable for many cases, patients with bilateral hernias or complex hernia defects may still require the contralateral or standard TAPP approach for optimal repair.
- **Anatomical Variations:** Patients with previous lower abdominal surgeries or significant obesity may pose challenges in port placement and necessitate careful preoperative planning

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