



**ORIGINAL RESEARCH PAPER**

**General Surgery**

**STUDY TO DETERMINE AN APPROPRIATE INCISION FOR OPEN APPENDICECTOMY**

**KEY WORDS:** Incision for Appendicectomy, Lateral incision, Lateral transverse incision

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**ABSTRACT**

Appendicitis is the most common cause of acute abdominal pain in all ages. This needs Appendicectomy. Appendicectomy is the most frequent surgical procedure performed. Open appendicectomy has been the standard treatment for Appendicitis. It is undertaken as an emergency or elective procedure. Even in this laparoscopic era, open appendicectomy is the most common open surgical procedure. In this study a lateral transverse incision starting just medial to anterior superior iliac spine and extending up to spino umbilical line which targets Caecum below it, is compared with usual Lanz incision to determine the appropriate incision to identify the appendix easily and to proceed easy open appendicectomy.

**I. INTRODUCTION**

Appendicitis is the most common cause of acute abdominal pain in all ages. This needs Appendicectomy. Appendicectomy is the most frequent surgical procedure performed. It is often the first major procedure performed by a surgeon in training. Open appendicectomy has been the standard treatment for Appendicitis. It is undertaken as an emergency or elective procedure. Even in this laparoscopic era, open appendicectomy is most common open surgical procedure. It is done through the classical Mc Burney's incision and Lanz incision. Both the incision are going through the Mc Burney's point, junction of lateral 1/3<sup>rd</sup> and medial 2/3<sup>rd</sup> of spino umbilical line<sup>(1)</sup> from anterior superior iliac spine to Umbilicus which corresponds to the base of the appendix. This standard incision has its own drawbacks like large scars, hernia and post operative pain. The Lanz incision<sup>(2)</sup> is a cosmetically better incision but has the difficulty to identify the appendix as most of the time Ileum is the presenting organ.

Most of the time the position of the Appendix is not a constant<sup>(3)</sup>. Caecum is the most lateral most structure in the abdominal cavity. The anterior tinea coli of the caecum is generally quite prominent, it serves as a guide to locate the appendix<sup>(4)</sup>. So tinea coli is traced from ascending colon to caecum, then to the base of the appendix. Caecum is the surgical target. Incision is made no more than 2 – 3 cm medial to the anterior superior iliac spine and extended medially in the line of skin crease over McBurney's point, which marks the normally situated appendix. Neglect of this leads to small bowel being the presenting viscus and an untidy, frustrating search further laterally for the caecum<sup>(5)</sup>.

In this study a lateral transverse incision (Picture 1) starting just medial to anterior superior iliac spine and extending up to spino umbilical line which targets Caecum below it (Picture 2), to localise the appendix easily is used. Abdomen is vacuum place. The structure below the site of incision comes out first. Caecum comes out if one makes incision over the caecum otherwise ileum (Picture 4) comes out.

**Anatomy**

Vermiform appendix is a blind tubular structure with mucosal, sub mucosal, muscular and serosal layers. At birth, the appendix is short and broad at its junction with caecum, but differential growth of caecum produces typical tubular structures by the age of two years. During childhood, constant growth of caecum commonly rotates the appendix in to a retrocaecal but intraperitoneal position. Non rotation of the appendix results in pelvic, subcaecal or paracaecal position. Rarely non migration of caecum resulting in appendix found near gall bladder. But the position of the appendix base is constant, being found at the confluence of the three taenia coli of the caecum, which fuse to form the outer longitudinal coat of the appendix. At operation, identification of caecum, gentle

traction on the taenia coli particularly the anterior taenia (Picture 3), will lead to the base of the appendix.

**II. MATERIAL AND METHOD**

This study aims at easy identification of Appendix by the Lateral incision to proceed the appendicectomy. This study was conducted in a single centre. 100 cases of acute appendicitis who were presenting at the emergency department were selected.

**Total cases:** 100

**Incisions:**

1. Lateral incisions – 50 patients
2. Lanz incisions - 50 patients

**Categories:** two

- Easy appendix- Caecum is seen immediately on opening the Peritoneum and needs minimal retraction
- Difficult appendix- Caecum is not seen, Ileum is coming out. This needs more retraction of muscles, extension of incision and / or muscle cutting laterally in search of caecum and Appendix.

**Inclusion criteria**

- Patients in whom acute appendicitis was documented clinically, with Alvarado score of more than 5 and confirmed with ultra sonogram.
- Clinical symptoms recorded were peri umbilical colicky pain, pain shifting to the right iliac fossa, anorexia, nausea and vomiting.
- Signs recorded were fever, localised tenderness in the right iliac fossa, muscle guarding, rebound tenderness.
- Ultra sonogram is done in every patient.

**Exclusion criteria**

- Patients with signs and symptoms of perforation peritonitis,
- Abscess and its complications,
- Obese patients
- Paediatric patients

**Lateral incision**

A transverse incision (Picture 1) of about 3 to 4 cm was made just medial to anterior superior iliac spine and extending up to spino umbilical line. External oblique muscle was cut. Deep muscles were split open. Peritoneum is entered. Caecum was identified on opening the peritoneum (Picture 2) which is delivered out and on gentle traction on the anterior taenia coli leads to appendix and appendicectomy was proceeded.

**Lanz incision**

Skin incision is made along the Langerhan's line through Mc Burney's point across the spinoumbilical line. Mc Burney's point represents the base of the appendix. External oblique

fascia is divided. Internal oblique and Transverse abdominis muscles are split opened and retracted. Peritoneum is entered. Table is tilted to left side to move Ileum from right iliac fossa. Appendix or Caecum is identified, delivered out and Appendicectomy is proceeded.



Picture 1: Lateral transverse incision



Picture 2: Caecum is the presenting organ



Picture 3: Anterior taenia coli of caecum



Picture 4: Presenting organ is Ileum

III. ANALYSIS

TABLE 1: Incision comparisons

Incision	Total cases	Organ Identified		Appendicectomy	
		Caecum	Ileum	Easy	Difficult
Lateral Incision	50	42	8	46	4
Lanz Incision	50	16	34	30	20

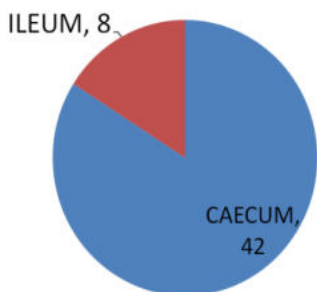


Chart 1: Lateral incision

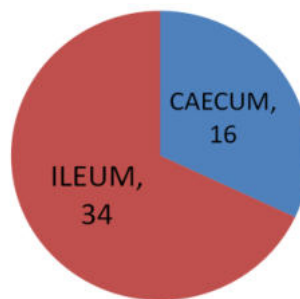


Chart 2: Lanz incision

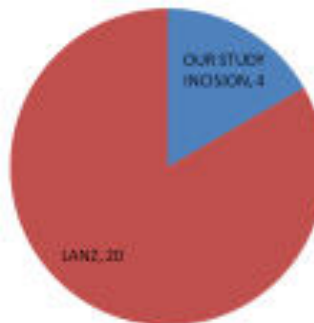


Chart 3: Difficult appendicectomy

TABLE 2: Cross tabulations

INCISION	APPENDICECTOMY	
	EASY	DIFFICULT
LATERAL INCISION	46(92)	4(8)
LANZ INCISION	30(60)	20(40)

TABLE 3: Anova

INCISION AND EASINESS OF APPENDICECTOMY	F-Value	Table Value	P Value
	16.00	3.92	0.0000

From the above table it is inferred that the p-value is less than 0.05 at 5% level of significance. Therefore the null hypothesis is rejected and alternate hypothesis that of the type of Incision significantly influences the easiness of Appendicectomy .

IV. CONCLUSION

Even in this laparoscopic era, open appendicectomy has been the treatment of choice for Acute appendicitis in government medical college hospital where residents are learning appendicectomy. Lateral incision is the appropriate incision for open appendicectomy to identify appendix easily and to do easy appendicectomy compared to other incisions.

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