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Research Article

**A COMPARATIVE STUDY TO ASSESS POST-OPERATIVE
PAIN AT VARIOUS INTERVALS OF 6, 12, 18, 24 & 36 HOURS
BETWEEN LAPAROSCOPIC & OPEN APPENDECTOMY****Huda Aslam, Hira Moughal, Nida Nasir Jaspal**
Allied Hospital Faisalabad**Abstract:**

Objective: We aimed to compare the pain felt post-operatively during various time intervals of 6, 12, 18, 24 and 36 hours.

Material and methods: We conducted this research in the Surgery Department of Allied Hospital, Lahore from February to September 2017 on a total of sixty-two appendicitis patients. Research sample distribution was such that patients had a random distribution in two groups respectively "OA" and "LA" groups. The research analyzed the hospital stay and post-operative pain in the patients.

Results: Both the groups included thirty-one patients in each group. We compared the pain felt post-operatively during various time intervals of 6, 12, 18, 24 and 36 hours through VAS scale; which was significantly less than the patients treated with laparoscopically with a significant P-value under 0.0001. Post-operative pain in both groups in terms of postoperative stay was respectively 6.71 days (5 – 12 days) and 7.74 days (3 – 13 days) in LA and OA groups. Hospitalization was less in LA group than OA.

Conclusion: There are equal safe evidence is available about laparoscopic appendectomy which also produces decreased postoperative morbidity rate, as an open appendectomy. Majority of the patients of acute appendicitis experience laparoscopic intervention. Laparoscopic appendectomy is very helpful in order to decrease hospital stay, complications, post-operative pain and normal activity restoration. Better training can improve its regular application by the surgeon.

Keywords: Appendectomy, Appendicitis, VAS, Laparoscopic Appendectomy (LA), Open Appendectomy (OA), Post-Operative and Laparoscopy.

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INTRODUCTION:

There is an estimate of (7%) about the development of appendicitis once in a lifetime with a peak incidence in the age from ten to thirty years as appendectomy is among most repeated abdominal surgery [1 – 3]. Doctors chose the method of Appendectomy through gridiron incision of McBurney most of the time as their first option of choice till the time of an alternative in the shape of laparoscopic appendectomy (LA) [4, 5]. Numerous studies compared OA and LA; there is difficulty in the establishment of numerous benefits of McBurney and LA to reduce the associated rate of morbidity.

LA has few benefits which include an early discharge from the hospital, decreased operative pain, an early return normal routine, reduced wound infection and improved cosmetic scar [6, 7]. Laparoscopy also prevents an unnecessary abdominal cavity opening and normal appendix removal [8]. Laparoscopy also helps in the improved assessment of related intra-abdominal pathologies. LA also has few limitations such as technical difficulty, prolonged operation, non-availability of equipment, intra-abdominal abscesses increase and higher expenses [9]. Because of these associated reasons, LA is still less famous and it is not that much widespread [10].

As LA is a newer method which needs comparative research studies with the OA for the determination of associated merits and demerits. We aimed to compare the pain felt post-operatively during various time intervals of 6, 12, 18, 24 and 36 hours.

MATERIAL AND METHODS:

We conducted this comparative research in Surgery Department of Allied Hospital, Lahore from February to September 2017 on a total of sixty-two appendicitis patients in the age bracket of (10 – 60) years. Research sample distribution was such that patients had a random distribution in two groups respectively “OA” and “LA” groups. The research analyzed the hospital stay and post-operative pain in the patients. We did not include all the patients with

general anaesthesia allergy, severe pulmonary disease, severe cardiac disease, appendicular perforation, appendicular mass, mentally disable, pregnancy, generalized peritonitis, cirrhosis history, shock on admission and coagulation disorders.

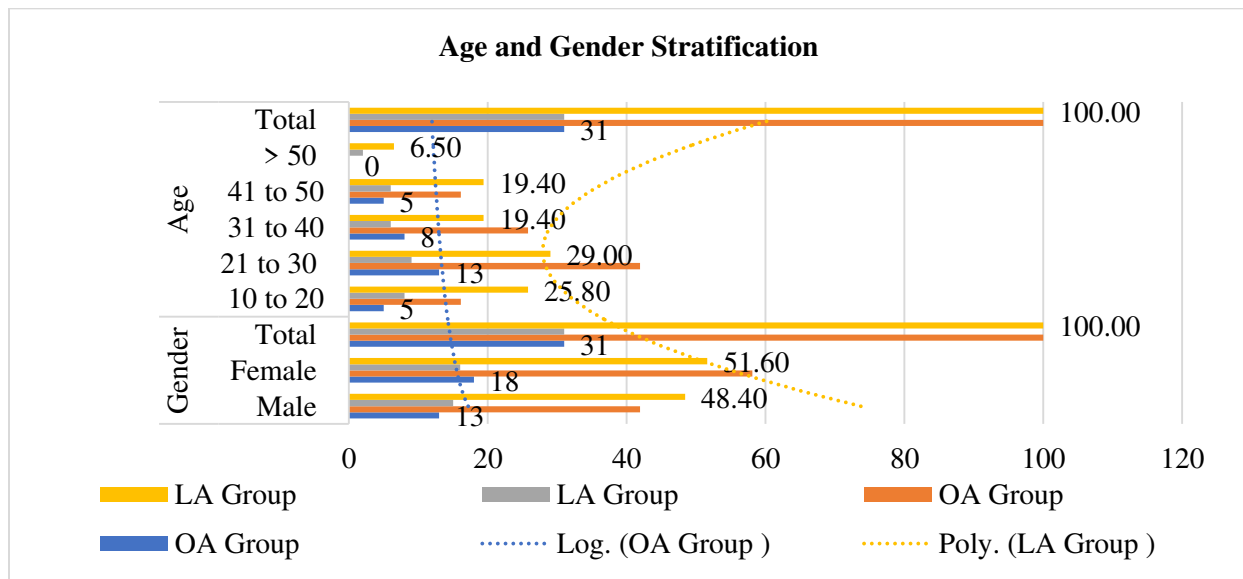
Groups “A” and Group “B” respectively experienced “Open Appendectomy” and “Laparoscopic Appendectomy”. Senior Consultant Surgeons conducted all the surgical interventions. We compared the pain felt post-operatively during various time intervals of 6, 12, 18, 24 and 36 hours through VAS scale; which was significantly less than the patients treated with laparoscopically with a significant P-value under 0.0001. Hospital stay was total stay during treatment from the day of admission to day of discharge. We documented every outcome on a prescribed Proforma and further analyzed on SPSS software.

RESULTS:

OA groups had a male to female distribution of 13 males (41.9%) and 18 females (58.1%); whereas, in LA groups 15 males (48.4%) and 16 females (51.6%) as reflected in Table – I. Patients were in the age bracket of (18 – 60) years with an average age of (33.08) years. Older age group experienced LA; whereas, a bit younger age group experienced OA. The respective mean ages of patients experiencing LA and OA were 33.61 and 32.55 years. This difference was statistically significant (P-Value = 0.689) as shown in Table – I. Every patient of both LA and OA groups experienced pain in the right-lower quadrant area. Both OA and LA groups patients also experienced “Nausea” respectively in 21 and 17 participants; whereas, vomiting in 5 and 8 patients. Fever presentation was in both groups as 6 and 8 participants in OA and LA groups as reflected in Table – I. LA group experienced less pain in comparison to OA group during the first post-operative thirty-six hours. Various intervals had various significant pain scores (P-Value under 0.0001). Tabular data contains a detailed outcomes analysis as under:

Table – I: Age, Gender, Symptoms, Duration and Hospital Stay Stratification

Gender / Age / Symptoms / Duration / Hospital Stay		OA Group		LA Group	
		Number	Percentage	Number	Percentage
Gender	Male	13	41.90	15	48.40
	Female	18	58.10	16	51.60
	Total	31	100.00	31	100.00
Age	10 to 20	5	16.10	8	25.80
	21 to 30	13	41.90	9	29.00
	31 to 40	8	25.80	6	19.40
	41 to 50	5	16.10	6	19.40
	Above 50	0	0.00	2	6.50
	Total	31	100.00	31	100.00
Symptoms	Pain Abdomen	31	100.00	31	100.00
	Nausea	21	67.74	17	54.83
	Vomiting	5	16.10	8	25.80
	Fever	6	19.35	8	25.80
Duration (Hours)	6	9.52	0.42	6.95	0.61
	12	9.22	0.31	6.88	0.62
	18	8.16	0.35	6.5	0.52
	24	7.95	0.43	4.45	0.47
	36	7.2	0.46	4.11	0.51
Hospital Stays (Days)	Under 4	1	3.20	0	0.00
	4 to 8	20	64.50	26	83.80
	Above 8	10	32.20	5	16.10



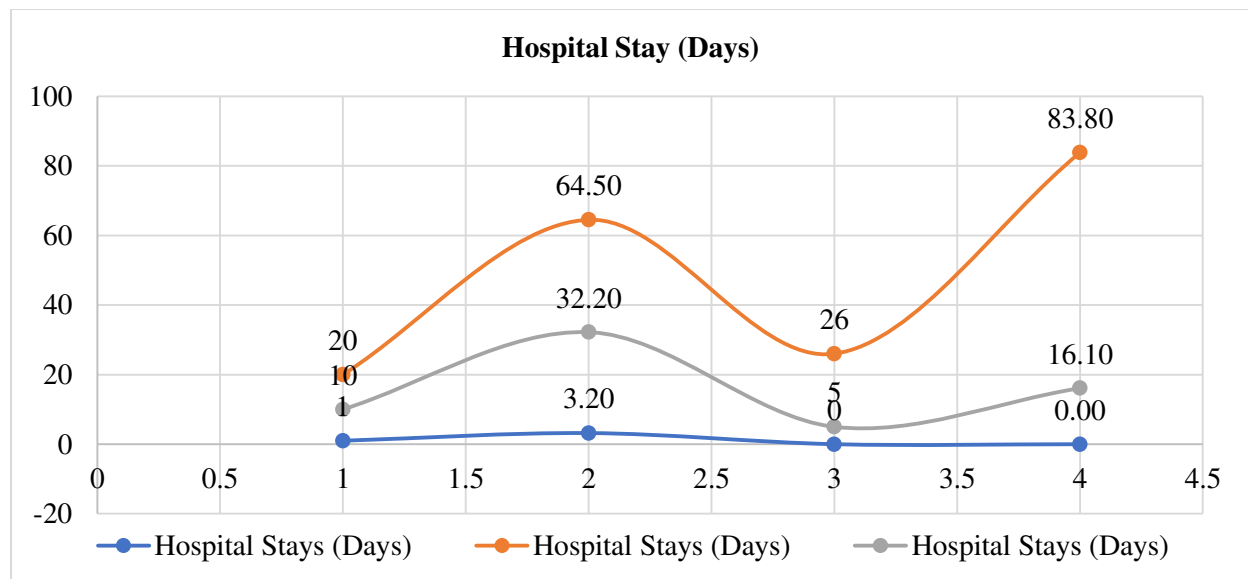
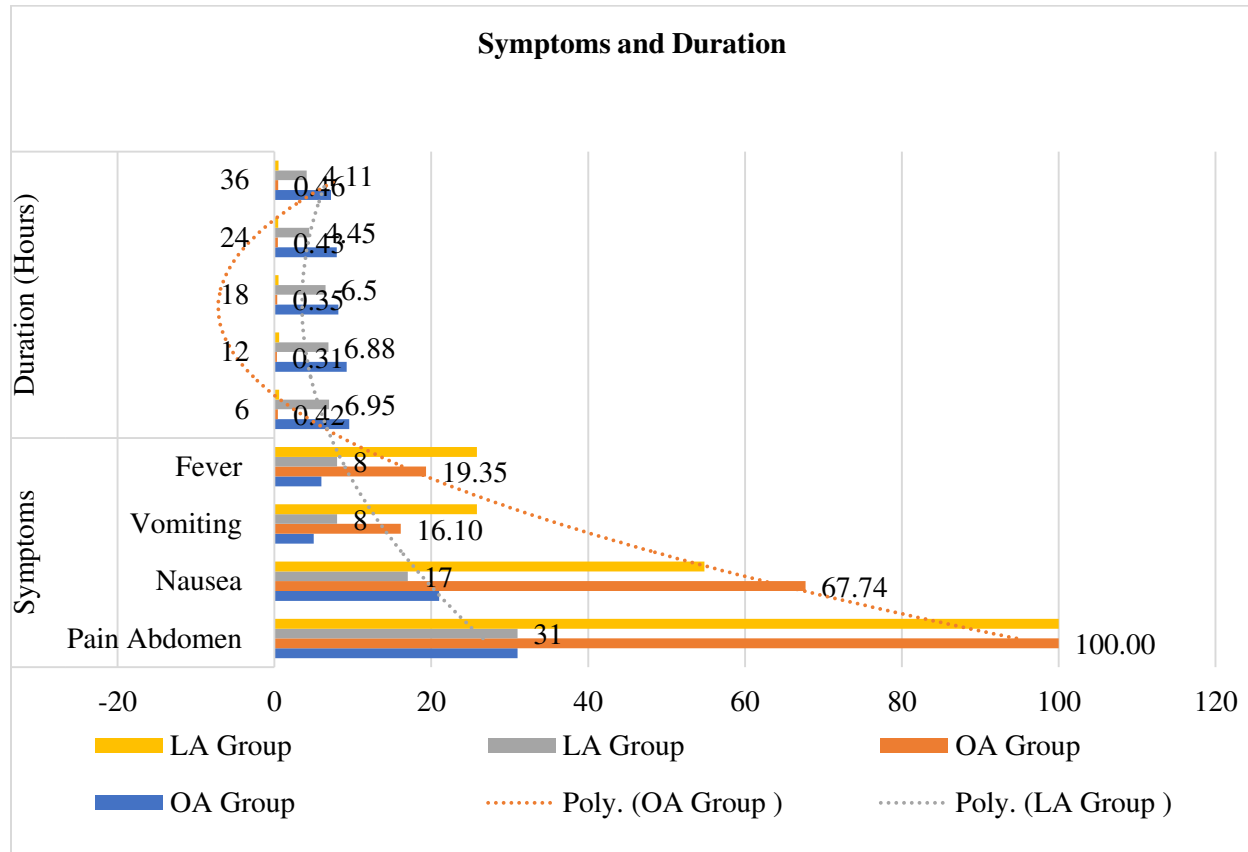
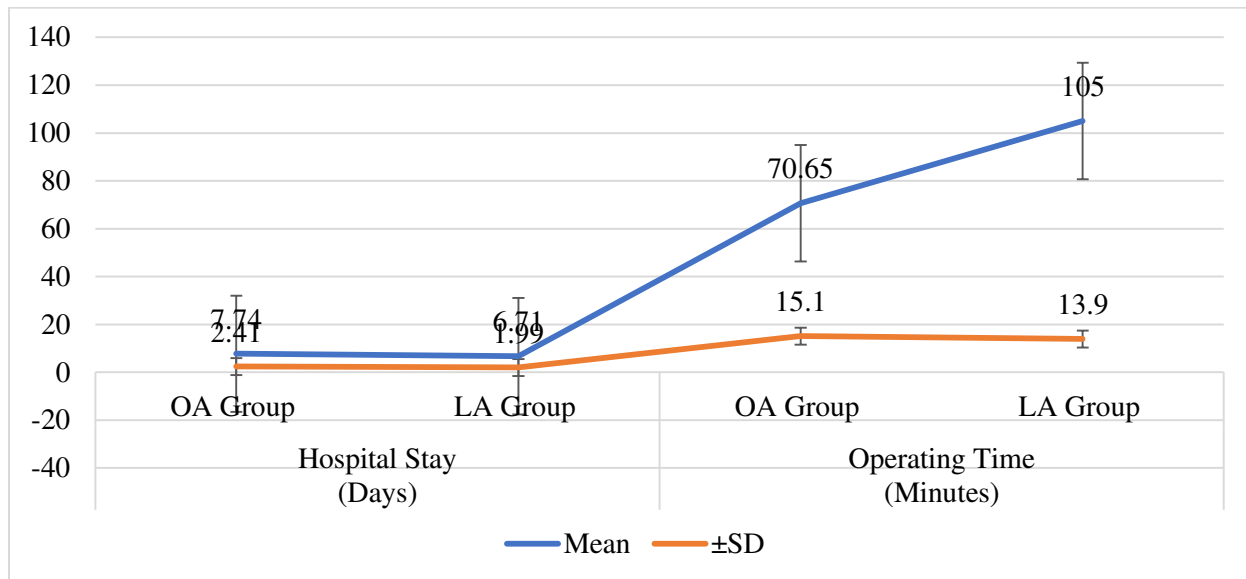


Table – II: Mean and SD values of Operating Time and Hospital Stay

Hospital Stay / Operating Time	Procedure	Mean	±SD	P-Value
Hospital Stay (Days)	OA Group	7.74	2.41	0.0705
	LA Group	6.71	1.99	
Operating Time (Minutes)	OA Group	70.65	15.1	< 0.0001
	LA Group	105	13.9	

**DISCUSSION:**

There is a revolution in the surgical procedures since the laparoscopy's introduction. Back in 1983 a German gynaecologist Kurt Semm first described L.A [5]. Whereas, LA did not gain any wide acknowledgement as other surgical interventions and it is also not a gold standard. Similar characteristics are available in both groups such as in terms of mean age, gender distribution and pain scores. LA patients experienced less pain than OA patients at various defined time intervals. Outcomes are similar as reported in various other research studies [11 – 13]. However, few authors did not present any variation between both groups [14 – 15]. R.C. Ignacio reported no statistical variation in pain scores on the first and seventh day after operation between both groups; Namir Katkhouda reported similar outcomes at first, second, third day and after two weeks (2005). LA patients had a better rate of recovery than OA. Post-surgical discomfort was also because of reduced abdominal wall trauma. Early post-operative risks and complications included abdominal musculature

mobility and an early reduced ambulation.

Hospitalization in both the cases is a debatable topic ever since [16 – 17]. Dissimilar outcomes are available in the literary references. Majority of the authors reported a mean hospital stay as (2 – 5) days without any difference in the OA or LA approaches. Shorter hospitalization is visible in LA group as reported by various authors [19 – 20]. Whereas, few authors also reported no significant variation in terms of hospital stay [21 – 22]. Few also made an association of LA with reduced hospitalization [23 – 24].

Sauerland reported reduced hospitalization in his trial of three thousand patients who underwent LA [25]. Golub also found similar outcomes without any significant variation in the LA and OA groups [12]. The available literature describes variations due to social habits or hospital factors instead of operative approaches [21]. We reported a reduced hospital stay in LA approach. Various other studies also reported their outcomes about operating duration as well [11,

19, 21]. Few authors reported the short duration of operation in the OA approach; whereas, others reported no variation in their research studies. LA had an increased operating duration in our research. Various additional steps inclusion may be the possible cause behind increased operating duration such as different tubes adjustment, video apparatus, cables, insufflation, diagnostic laparoscopy and trocar entry. Residents are less experienced in the medical teaching institutes; whereas, the teaching time of the residents also decreases the operation progression. Laparoscopic operating duration improves with the improvement of experience. LA approach patients developed an early onset of bowel sounds than OA group after the operation which supports an early diet resumption. No conversion of the group reported from OA to LA in our research. The conversion rate of other studies varies from (1% – 22%) that associates with various factors such as adhesion around caecum, strong infiltration, bleeding appendicular artery and appendix location [13, 26].

CONCLUSION

LA had many advantages over OA as reported in this particular research. LA has an association with short hospitalization and reduced post-operative pain; therefore, LA is safe to manage appendicitis unless the contraindication of laparoscopy. There are equal safe evidence are available about laparoscopic appendectomy which also produces decreased postoperative morbidity rate, as an open appendectomy. Majority of the patients of acute appendicitis experience laparoscopic intervention. Laparoscopic appendectomy is very helpful in order to decrease hospital stay, complications, post-operative pain and normal activity restoration. Better training can improve its regular application by the surgeon.

REFERENCES:

1. Guller U, Hervey S, Purves H, Muhlbauer LH, Peterson ED, Eubanks S et al. Laparoscopic versus open appendectomy: outcomes comparison based on a large administrative database. *Ann Surg.* 2004; 239:43-52.
2. Wagner JM, Likelihood ratios to determine 'Does this patient have appendicitis? Comment and Clarification. *JAMA*;1997; 278:819-820.
3. Attwood SE, Hill AD, Murphy PG, Wall DR, Miller BJ, Menzies BL, et al. A prospective randomized trial of laparoscopic versus open appendectomy. *Surgery* 1992; 112:497-501.
4. Martin LC, Puente I, Sosa JL, Bassin A, Breslaw R, McKenney MR et al. Open versus laparoscopic appendectomy: a prospective randomized comparison. *Ann Surg.* 1995;

- 222:256-61.
5. Sauerland S, Lefering R, Holthausen U, Neugebauer EA. Laparoscopic vs conventional appendectomy: a meta- analysis of randomized controlled trials. *Lange becks Arch Surg.*1998; 383:289-95.
6. Moberg AC, Berndsen F, Palmquist I. Randomized clinical trial of laparoscopic versus open appendectomy for confirmed appendicitis. *British Journal of Surgery.* 2005; 92:298-304.
7. Chiarugi M, Bucciante P, Celona G, Decanini Mastino MC, Goletti O, Cavina E. Laparoscopic compared with open appendectomy for acute appendicitis: A Prospective study. *Eur J Surg.* 1996;162: 385-90.
8. Hellberg A, Rudberg C, Kullman E, Enochsson L, Fenyó G, Graffner H et al. Prospective randomized multi-center study of laparoscopic versus open appendectomy. *Br J Surg.* 1999;86: 48-53.
9. Reiertsen O, Larsen S, Trandsen E, Edwin B, Faerden AE, Roseland AR. Randomized controlled trial with sequential design of laparoscopic versus conventional appendectomy. *Br J Surg.*1997;84:482-7.
10. Martin JV, Memon AM. The Justification for Laparoscopic appendectomy. *Rev Esp Enferm Dig.* 1999;91: 447-55.
11. Fleming PP, Chan AK, O'Brien MG, O'Sullivan GC. Laparoscopic appendectomy– A successful operation in adults and children. *Ir J Med Sci* 1997;166:13-5.
12. Frazee RC, Roberts JW, Symmonds RE, Snyder SK, Hendricks JC, Smith RW, et al. A prospective randomized trial comparing open versus laparoscopic appendectomy. *Ann Surg.*1994; 219: 725-8.
13. Golub R, Siddiqui F, pohl D. Laparoscopic versus open appendectomy: A meta-analysis. *J Am Coll Surg.* 1998; 186:545-53.
14. Milewczyk M, Ciesielski M.A. prospective, randomized, uni-centre study comparing laparoscopic and open treatments of acute appendicitis. *Surg Endosc* 2003; 17:1023-8.
15. Ignacio RC, Burke R, Spencer D, Bissell C, Dorsainvil C, Lucha PA. Laparoscopic versus open appendectomy: what is the real difference? Results of a prospective randomized double – blinded trial. *SurgEndosc.*2004; 18:334-7.
16. Katkhouda N, Mason RJ, Towfigh S. Laparoscopic Versus Open Appendectomy: A prospective Randomized Double – Blind Study. *Ann Surg.* 2005; 242:439-50.
17. Kum CK, Ngoi SS, Goh PM, Tekant Y, Issac JR.

- Randomized controlled trial comparing laparoscopic and open appendectomy. *Br J Surg.* 1993; 80:1599-600.
18. Hansen JB, Smithers BM, Schache D, Wall DR, Miller BJ, Menzies BL.
 19. Laparoscopic versus open appendectomy: prospective randomized trial. *World J Surg.* 1996; 20: 17-20.
 20. Cox MR, McCall JL, Toouli J, Padbury RT, Wilson TG, Wattoo DA et al. Prospective randomized comparison of open versus laparoscopic appendectomy in men. *World J Surg.* 1996; 20:263-6.
 21. Vallina VL, Velasco JM, McCulloch CS. Laparoscopic Versus Conventional Appendectomy. *Annals of surgery.* 1993;218(5):685-92.
 22. Addiss DG, Shaffer N, Fowler BS, Tauxe RV. The epidemiology of appendicitis and appendectomy in the United States. *Am J Epidemiology* 1990;132: 910-25.
 23. Kozar RA, Roslyn JJ. The appendix. In: Schwartz SI, Shires GT, Spencer FC, Daly JM, Fischer JE, Galloway AC (editors). *Principle of surgery 7th (Ed)USA; McGraw Hill ;1999.*
 24. O'Connell PR. The vermiform appendix. In: Russell RCG, Normal WS, Christopher JKB (editors). *Bailey and Love short practice of surgery ,23rd (Ed). London: Arnold; 2000:1076-92*
 25. McBurney C. The incision made in the abdominal wall in case of appendicitis with a description of a new method of operating. *Ann Surg.* 1894; 20:38
 26. Semm K. Endoscopic appendectomy. *Endoscopy.* 1983;15:59-64.