



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.3813686>Available online at: <http://www.iajps.com>

Research Article

**THE OUTCOME OF ROUTINE LAPAROSCOPIC VERSUS
OPEN APPENDECTOMY**

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Abstract:

Appendectomy is the most common surgical procedure performed in emergency surgery. Appendectomy is still being performed by both open (OA) and laparoscopic (LA) methods because of lack of consensus about the most appropriate technique. We evaluated the outcomes of routine laparoscopy and laparoscopic appendectomy (LA) in patients with suspected appendicitis. This is a retrospective study of the outcomes of patients undergoing laparoscopic appendectomy compared with outcomes for patients undergoing open appendectomy (OA) during the time that LA came into use. routine laparoscopy and LA for suspected acute appendicitis is safe and is associated with a significantly shorter hospital stay. Other intra-abdominal pathologies can also be diagnosed more accurately with the laparoscopic approach.

Key Words: Appendicitis, Appendectomy (OA), Laparoscopy, Risk factors, Laparotomy, Affects in children.

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Please cite this article in press Abrar Wazzan et al, *The Outcome Of Routine Laparoscopic Versus Open Appendectomy* ., *Indo Am. J. P. Sci*, 2020; 07(05).

INTRODUCTION:

Acute appendicitis represents one of the most common causes of urgent surgical interventions in pediatric age group. Appendectomy is one of the most commonly performed operations by general surgeons. For almost a century, open appendectomy (OA), first described by Charles McBurney in 1889, has remained the gold standard treatment for acute appendicitis. It is considered a safe, effective procedure with a low morbidity rate. Laparoscopic appendectomy was first described by Kurt Semm in 1983 and the application of the laparoscopic approach for acute appendicitis was first reported by Schreiber in 1987.³ With advances in technology and the surgical technique, laparoscopic appendectomy has become the novel alternative in the treatment of appendicitis in the last 2 decades. Despite the publications of numerous randomized trials, which compared open and laparoscopic appendectomy, the indications for laparoscopy in patients with suspected appendicitis remain controversial. Some studies failed to demonstrate clear advantages of LA over OA. No consensus exists as to whether laparoscopy should be performed in select patients or routinely for all patients with suspected acute appendicitis. In the present study, the outcomes of the policy of adopting laparoscopy routinely for patients with suspected acute appendicitis were retrospectively reviewed.

In spite of the fact that the patients were uniformly separated by sex, specialists performed laparoscopic appendectomy more habitually in female patients than in male patients. Forty-five percent of the female patients had laparoscopic appendectomy, as contrasted and 29 percent of the male patients ($P < 0.01$). More seasoned patients will probably have open appendectomy than more youthful ones ($P < 0.05$). Among the laparoscopic appendectomies, 15.7 percent must be changed over to open appendectomies. Barely any high-hazard patients had laparoscopy. (Just 3.2 percent of the patients who had laparoscopy were in ASA class III, though 11 percent of those experiencing open appendectomy were in classifications III and IV.) Twenty-eight percent of the patients experiencing laparoscopic appendectomy had ordinary appendixes, as contrasted and 15 percent of the patients experiencing open appendectomy. With respect to whether there was a choice inclination, specialists seemed to lean toward open to laparoscopic appendectomy in more debilitated patients. There was no distinction in rates of complexities between the two methods [1].

General straight model measurements were utilized to think about the terms of medical procedure, lengths of remain, and healing center charges among the 230 patients in ASA classifications I and II. The

mean span of laparoscopic appendectomy was more prominent than that of open appendectomy (75 versus 46 minutes, $P < 0.001$). The healing facility stay was 1 day longer overall for open than for laparoscopic appendectomy (3.63 versus 2.57 days), albeit both mean stays were shorter than the 1991 U.S. normal of 4.3 days [2].

Laparoscopic appendectomy was fundamentally more costly than open appendectomy after change for contrasts in the seriousness of malady. demonstrates mean charges for various classes of age and sickness.

In synopsis, specialists favored open to laparoscopic appendectomy in more debilitated patients, a situation that could inclination correlations between the techniques. At the point when comparative gatherings of patients were analyzed, we found that laparoscopic appendectomy takes additional time and, in spite of a shorter healing center remain, costs more than open appendectomy, with no perceptible contrast in clinical outcomes [3].

RESULTS:

The examinations of the patient's socioeconomic and clinical highlights are outlined. No huge factual contrasts were noted in both the gatherings concerning age, sex and torment span. The agent subtle elements and the postoperative qualities are noted. Out of 114 patients in the LA gathering, 28 patients had confounded a ruptured appendix, while 32 patients in the OA bunch had confused an infected appendix, for example, puncturing and gangrenous changes. The middle agent time in the OA [49.2min] aggregate was fundamentally shorter [$p < 0.0139$] than that in the LA [72.5 min] gathering, as abridged [4].

The post-agent torment was subjectively stratified into mellow, direct and serious, as indicated by the visual simple scale (VAS). Even however the generally early torment was pretty much equivalent in the LA assemble than in the OA gathering, later, it was fundamentally less [$p < 0.0123$] when contrasted with that in the OA gathering. The post agent healing facility stay was 2.5 ± 0.54 days in the LA aggregate as compared to 4.25 ± 0.67 days in the OA gathering, which was not factually noteworthy [$p < 0.2510$]. There were no measurably critical contrasts in the injury contamination rates in both the gatherings [LA-9(7.89%) when contrasted with OA-14(11.6%)], yet one patient in the LA amass had stump a ruptured appendix. The patient was readmitted and experienced laparotomy with appendectomy for diverticulitis. The whole example was sent for histopathological affirmation. Absolutely, three patients had negated an infected appendix, of which two patients of the LA gather

experienced torsion of the ovary and one patient in the OA aggregate had Meckel's diverticulum [5].

DISCUSSION:

In this study, the change in the operative approach in patients with suspected appendicitis is shown to be safe and effective. The laparoscopic skills of experienced laparoscopic surgeons can be transferred to a different operation without increasing the patients' morbidity. Laparoscopy can be performed in 94.8% of patients with suspected appendicitis. Despite the fact that the incidence of complicated appendicitis was 37%, the conversion rate was only 7.8%, which is comparable to the results of other studies. The operating time is longer with the laparoscopic approach, and this reflects the learning curve of the procedure. No intraoperative complication led to morbidity or conversion. The use of preoperative imaging for diagnosis of equivocal cases was similar in the 2 periods. Thus, although the preoperative stay was shorter in the laparoscopy period, laparoscopy did not reduce the need for imaging in patients with equivocal presentations.

Past examinations taking a gander at LA versus OA in youngsters have prompted blended outcomes. It was at first demonstrated that LA was related with an expanded hazard for postoperative intra-stomach canker in youngsters with punctured a ruptured appendix. Comparable outcomes were likewise exhibited in a huge database examination for both punctured and nonperforated an infected appendix. Be that as it may, different examinations have not affirmed this discovering [6]. An ongoing meta-investigation of 23 planned and review contemplates proposed that LA was related with diminished postoperative inconveniences. While breaking down just the imminent examinations, in any case, there were no noteworthy contrasts in postoperative dismalness amongst LA and OA. One purpose behind the repudiating results might be the absence of intensity in the dominant part of these investigations. For instance, if the injury contamination rate related with OA is 5% (as found in this examination), to see a half relative decrease at a 5% hugeness level and 80% power, a randomized controlled investigation would require about 1000 patients in each arm. To date, the biggest planned randomized preliminary contrasting LA and OA in youngsters selected a little more than 500 patients for the whole investigation [7]. Then again, examines with tremendous populace databases (eg, >20 000 patients) may demonstrate a measurably critical distinction however without a clinically huge contrast. In an ongoing database ponder containing almost 100 000 patients, LA was related with a factually noteworthy expanded danger of intra-stomach boil seepage from 3.8% with OA to 4.9%

in LA in youngsters with punctured a ruptured appendix, yet the clinical pertinence of this distinction is flawed [8].

The motivation behind this examination was to look at results of LA and OA in view of puncturing status and age. We particularly took a gander at irresistible entanglements in view of aperture status. For youngsters with nonperforated a ruptured appendix, the injury contamination rate was 2 times higher after OA, while the rate of ulcer seepage was comparative for both LA and OA. We discovered comparative outcomes in kids with punctured an infected appendix.

In this examination, pediatric specialists looked after youngsters more youthful than 6 years and general specialists tended to kids more seasoned than 6 years. Mirroring the impact of recently prepared general and pediatric specialists, all kids, even those more youthful than 6 years, are right now treated with LA. Likewise, general specialists give off an impression of being additionally ready to perform LA in more youthful and littler youngsters. Regardless of the expanding execution of LA in more youthful kids, it is as yet not certain whether the results are better than OA. It gives the idea that the primary advantage of LA is in kids more established than 12 years, since in these more seasoned youngsters, LA was related with diminished injury diseases in instances of non punctured an infected appendix. Moreover, in youngsters more seasoned than 12 years with punctured an infected appendix, there was a lower rate of ulcer seepage with LA [9].

Cost may likewise be an essential factor when contrasting LA and OA. When all is said in done, expanded expenses are because of higher rates of entanglements or longer LOH. In this investigation, LA was related with a shorter LOH for both nonperforated and punctured a ruptured appendix. Despite the fact that we didn't play out a formal cost investigation, we trust that the cost of LA might be bring down since both horribleness and LOH were lower. Since the readmission rates were comparative amongst LA and OA, we would expect negligible contrasts as for in general LOH and cost. Expanded agent time may likewise prompt higher cost. We didn't particularly take a gander at agent times in this examination; in any case, late investigations have demonstrated that the agent times for LA are like OA. Moreover, as establishments acquire involvement with laparoscopic systems in kids, LA agent times will turn out to be to a lesser extent a factor and in a few examples shorter than OA [10].

By and large, LA was related with diminished injury contaminations and shorter LOH contrasted and open appendectomy. In any case, these discoveries

were predominantly found in kids more seasoned than 12 years [11].

LA has inborn interest partook in all negligible intrusive medical procedures. This might be a direct result of diminished postoperative torment, early come back to ordinary day by day movement, and obviously predominant restorative outcomes. Then again, a few investigations have identified that LA required longer agent time and had more postoperative difficulties than COA. The mean agent time for LA in convoluted cases was 56.41 min, while for OCA it was 63.42 min.

This was near Li *et al.* [12] who detailed a mean agent time of 55.8 min for LA and of 57.94 min for OCA. Then again, Frauquzzmann and Mazumder [12]

demonstrated that the mean agent time for the laparoscopic aggregate was 112 min and for the traditional gathering it was 72 min, and he alluded to the requirement for careful analyzation of muddled an infected appendix amid the laparoscopic methodology. Diverse investigations of Ikeda *et al.* [13], Miyano *et al.* [8], and Wangetal. [9] revealed that the mean agent time for LA ran from 88 to 111 min and the mean agent time for the regular gathering ran from 71 to 108 min. This no doubt mirrors the specialized difficulties related with the laparoscopic method in testing cases. A few investigations have shown that with expanded encounter the agent time for convoluted appendicitis is comparable for LA and OCA. We saw that gross pathology of the excited supplement was either suppurative, punctured, or gangrenous. Most different creators included just punctured an infected appendix as the main sort of confused an infected appendix amid either laparoscopic or ordinary systems. Menezes *et al.* included both punctured and posse renous a ruptured appendix in his arrangement for LA. There was a distinction as respects doctor's facility remain in the two gatherings amid our examination. The mean postoperative healing facility stay was 2.75 days in gather An and 4.38 days in amass B. Aziz *et al.* demonstrated that the length of doctor's facility stay was altogether lessened in cases subjected to LA, either confounded or uncomplicated, and he accepted that

these outcomes might be identified with the upsides of insignificant intrusive methodology of laparoscopic strategies, which included diminished postoperative torment and early mobilization prompting early release. Along these lines, our outcomes were like the arrangement of Jen and Shew who archived healing facility remain of 5.2 ± 3.2 days in LA and 5.5 ± 3.4 days in COA. A few creators, for example, Ikeda *et al.* [13], Miyano *et al.*

[10], furthermore, Wang *et al.* [9] demonstrated that the length of healing facility remain was moderately long in the two gatherings. It ran from 6.5 to 14 days for LA and from 7.8 to 16 days for COA. The occurrence of wound disease was less in LA when contrasted and OCA in our work. These outcomes were bolstered by those of Yagmurlu *et al.* [7] who demonstrated lessened occurrence of twisted disease in LA. Pelvic gathering happened in 14 instances of LA and in 54 instances of OCA, and these youngsters required re-confirmation and ultrasound-guided waste was performed for all cases together with anti-infection agents for multi week. Patients were released when the accumulation totally vanished. The hazard factors for the improvement of intra-stomach accumulations stay dubious. A few reports suggested that the frequency of this entanglement is higher after laparoscopic appendectomy among patients with punctured an infected appendix. Then again, Yagmurlu *et al.* [13] demonstrated no noteworthy increment in the frequency of postoperative intra-stomach canker after LA. He accepted that the utilization of a stapler instead of an endoloop diminishes the danger of spillage. Our patients in gather A came back to ordinary day by day action inside 8.98 days, while those of gathering B returned after 12.93 days. Marker *et al.* [13] demonstrated that in the pediatric populace quick come back to typical exercises may lessen the mental impacts of hospitalization, albeit strong confirmation is inadequate. Moreover, different investigations did not think about the level of parent and kid fulfillment as respects the last appearance of the injury [10]. In gather An, all guardians and youngsters were happy with the activity, though in bunch B 120 guardians were fulfilled and the rest got irritated with the presence of the injury. We think that this point ought to be taken with awesome thought.

CONCLUSION:

although LA has a longer operative time, it results in faster postoperative rehabilitation, a shorter hospital stay, and fewer postoperative complications than OA. Thus the LA is a useful tool in the treatment of acute appendicitis and worth recommending as an effective and safe procedure for adults. However, the advantage of LA in children was not obvious. LA, however, is currently not universally accepted as the standard of care for the treatment of acute appendicitis in children and differences in the patient population mean that direct extrapolation of adult data to children is invalid.8,9 Although much research has been done to compare results from LA and OA in children, conclusions have been difficult to draw because of small study size, the presence of only a handful of randomized trials, and possible heterogeneity in patient characteristics, surgical practice, and severity of appendicitis between these

studies. At present, there is no consensus between pediatric surgeons as to the benefits of LA over OA.

We expected that LA for confused a ruptured appendix in youngsters ought to be the primary decision for the pediatric specialists, as it is sheltered, successful, and related with a generally acknowledged rate of postoperative inconveniences.

In spite of the fact that the utilization of LA expanded over our examination period, when the investigations were stratified by age, the appropriation of LA happened considerably later in more youthful youngsters.

Our examination is constrained for various reasons, notwithstanding those recorded prior. Our information depend on a review survey of a release database, and the International Classification of Diseases, Ninth Revision code of every determination and strategy was not freely approved. We couldn't control for the distinctive specialists' inclination or involvement concerning agent strategy. The LA and OA companions were not randomized gatherings, and along these lines, there was potential for jumbling. In any case, we balanced for age, sex, race, and puncturing status utilizing multivariable investigation. At last, we didn't get negative appendectomy rates from this database nor would we be able to decide the span of side effects before introduction [11].

REFERENCES:

1. McBurney CN. The incision Made in the Abdominal Wall in Cases of Appendicitis, with a Description of a New Method of Operating. *Ann Surg.* 1894; 20:38-43.
2. Samelson SL, Reyes HM. Management of perforated appendicitis in children-revisited. *Arch Surg.* 1987;122:691-6.
3. Editorial A. sound approach to the diagnosis of acute appendicitis. *Lancet.* 1987, 198-200.
4. Semm K. Endoscopic appendectomy. *Endoscopy.* 1983;15:59-64.
5. Moberg AC, Berndrem F, Palmquist I, Petersson T, Resch T, Montgomery A. Randomised clinical trial of laparoscopic versus open appendectomy for confirmed appendicitis. *Br J Surg.* 2005; 92:298-304.
6. Harrell AG, Licourt AE, Novitsky YW, Rosen MJ, Kuwada TS, Kercher KW, et al. Advantages of laparoscopic appendectomy in the elderly. *Am Surg.* 2006; 72:474-80.
7. Young JL, Law CM, Lo CY, Cam CM. A comparative study of routine laparoscopic versus open appendectomy. *JLS.* 2006; 10:188-92.
8. Sweeney KJ, Keane FB. Moving from open to laparoscopic appendectomy. *Br J Surg.* 2003; 20:257-8.
9. Amir M, Raja MH. Timings for surgery of acute appendicitis. *J Coll Physicians Surg Pak.* 2000; 10:295-7.
10. Fingerhut A, Millat B, Borrie F. Laparoscopic versus open appendectomy: time to decide. *World J Surg.* 1999; 23:835-45.
11. Hellberg A, Rudberg C, Kullman E, Enochson L, Fenyo G, Graffner H, et al. Prospective randomized multicenter study of laparoscopic versus open appendectomy. *Br J Surg.* 1999; 86:48-53.
12. Seymour I, Schwartz editor, principles of surgery, 7th ed. United State of America: McGraw Hill. 1996, 1386.
13. Lin HF, Wu JM, Tseng LM, Chen K, Huang SH, Lai LR. Laparoscopic versus open appendectomy.