Transumbilical laparoscopic-assisted appendectomy as a safe procedure for pediatric uncomplicated appendicitis: A comparison with laparoscopic and open appendectomy in a randomized clinical trial

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Background: Deemed as a safe and easily performed procedure in children, transumbilicus laparoscopic-assisted appendectomy (TULA) also offers several other advantages: reduced costs, a lower wound infection rate, fewer postoperative complications and better cosmetic outcomes. The present investigation compares the results of three methods of appendectomies: 1-conventional, 2- laparoscopic, and 3- transumbilicus laparoscopic-assisted.

Methods: After considering inclusion criteria for uncomplicated acute appendicitis in children under 14 years, the current study enrolled 210 patients and divided them into three groups of 70 each. Patients with the following conditions were excluded (26 patients): gangrenous appendicitis (9 patients), appendicular abscess 7 patients), perforation and peritonitis (10 patients). Each group underwent one of the three methods of appendectomy. In TULA, a 5-mm laparoscopic port was inserted inside the umbilicus. After grasping the appendix, the surgeon exteriorized it from the umbilicus and then performed an extra-corporeal appendectomy. The surgical approaches for the other two patient groups were standard techniques normally utilized in laparoscopic (LA) and open appendectomy (OA).

Results: In TULA, the mean operation length was significantly shorter than that in LA. However, in a comparison between the TULA and OA groups, there was no statistically significant difference in the operation length. However, TULA's operation length was significantly shorter than that of LA. Regarding scar size, the smallest were from the TULA group, with a significant difference in surgical wound size when compared with those of the other two groups. The length of the hospital stay was significantly shorter for TULA and LA patients than for OA patients. In addition, there was a lower wound infection rate associated with TULA than with LA and OA.

Conclusions: TULA is an alternative method of appendectomy in uncomplicated pediatric acute appendicitis. Compared to other approaches, TULA is technically easier, has a shorter operation time, offers better surgical outcomes, involves less surgical site infections and results in excellent cosmetic results.