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COMPLICATIONS OF OPEN APPENDECTOMY VERSUS LAPAROSCOPIC APPENDECTOMY IN CHILDREN. COMPARATIVE ASSESSMENT

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Abstract: *Laparoscopic pediatric surgery (LA) is becoming a good alternative in many centres of the entire world, being associated with low risk of surgical complications and it offers a better alternative for the management of the appendectomy than open surgery. The goal of the study was to evaluate a comparative LA versus open appendectomy (OA) through the prism of the clinical results as they were reflected in specialty literature in the last two decades. In general, pediatric laparoscopic surgery has become acceptable in centres of the whole world. Many studies and meta-analyses have proven that laparoscopic surgery is a feasible and secure procedure, with many clinical benefits. Because laparoscopic appendectomy (LA) was associated with low risk of surgical complications, it may be a better alternative for appendectomy than OA.*

INTRODUCTION

Although open appendectomy (OA) was a gold standard for acute appendicitis treatment for more than a century, laparoscopic apendectomy is still discussed and even controversial with children especially regarding complicated forms (abducted appendicitis).

There has existed no proposed strategy or standard management for treating appendicitis in child until now.

Laparoscopic surgery for appendicitis is accepted in most centres from all over the world.

Studies and meta-analyses have proven that LA is a feasible and safe procedure with many clinical benefits:

- shorter post-operation ileus,
- lower incidence of wound infections,
- less post-operation pain,
- earlier return to normal work and activities.

Because laparoscopic appendectomy (LA) was associated with lower risk of surgical complications, it my be a better alternative to open surgery (OP).

In small children age group, there are no sufficient reports that can evaluate comparatively LA versus OP, assessing both interventions comparatively in terms of post-operation evolution.

AIM

The goal of the study was to comparatively evaluate clinical results, including interval of admission, time of surgery, post-operation complications, time of oral intake and returning to normal activities, in laparoscopic surgery versus OP in children, and how they have been reflected in specialty literature in the last two decades.

MATERIALS AND METHODS

We have analyzed a small number of medical studies published after the year 2000, which have proposed the theme of comparative evaluation of post-operation complications in LA versus OP.

In the consulted data base we have identified a number of 9 studies.

RESULTS AND DISCUSSIONS

The analysis of the first group of studies:

- LA versus OA in children with noncomplicated appendicitis and complicated appendicitis.(1)
- noncomplicated and complicated appendicitis in a randomized retrospective study, representing a meta-analysis of the randomized controlled aiming at all forms of acute appendicitis in child.(2)
- LA versus OA in adult and child: a meta-analysis of controlled randomized studies.(3)
- LA versus OA in children: a randomized, controlled study under development in our country.(4)

This leads to the following conclusions and findings:

- the operating time and the admission time were lower at those with uncomplicated apendicitis; in both types of appendicitis, there is no significant difference between laparoscopic appendectomy and open procedure from the point of view of the complications,
- LA may be considered a good alternative to OA for perforated apendicitis and also for absceded appendicitis because in LA there are much less statistically minor and major complications to OA (classic).

The analysis of the age groups has not emphasized significant differences between the two techniques regarding wound infections, post-operation complications, post-operation time of admission and return to the normal activities, but concluding that in children, there are necessary additional randomized high quality studies which must compare the two

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techniques.

Other studies:

- results comparing LA versus OA in children according to age, gender and the presence of the perforation (as a complication).(5)
- results comparing LA versus OA in children: sample data collected from national register of hospitalized patients (NIS), 2006-2008.(6)
- LA, as procedural preference in hospital, versus OP: effects on the simple appendicitis and complicated one.(7)

It has outlined the following aspects on LA:

- it is the favourite procedure for children with appendicitis, because LA (versus OA) was associated with low risk of wound infection, abscess draining and time of admission;
- it is sure in children with acute perforated appendicitis and non-perforated one, associated with:
  - a shorter time of admission than OA,
  - morbidity and mortality are lower in acute perforated appendicitis than OA.

However, in acute non-perforated appendicitis, the benefits are modest and associated with higher costs of hospitalization.

The complications and the use of the resources for acute appendicitis are associated with surgical technique and with the preferred procedure for every hospital; the hospitals that prefer laparoscopic technique have:

- higher percentage of complications for OA technique for complicated appendicitis and,
- higher costs regardless the appendectomy technique or the type of appendicitis.

The study was already quoted for conclusions and findings:

- LA versus OA in children: a randomized, controlled study, from a developing country.(8)

Regarding LA, it shows the following:

- LA is feasible and efficient for abscessed appendicitis being associated with beneficial clinical effects which are:
  - the early post-operation recovery of the gastro-intestinal function and,
  - low post-operation complications.

LA should be seriously considered a first choice option.

Another study: LA versus OA in the treatment of abscessed appendicitis in children and teenagers, retrospective study.(9)

We have found out, as previously, that:

- it was a feasible and efficient method for abscessed appendicitis and it is associated with beneficial clinical effects, as:
  - early post-operation recovery of gastro-intestinal function and,
  - low post-operation complications.
- LA should be considered first choice option.

CONCLUSIONS

Pediatric laparoscopic surgery is in general performed in many centres from all over the world.

Many studies and meta-analyses have been supporting with proofs that LA is a feasible and sure procedure, with a number of clinical advantages, such as:

- shorter post-operation ileus,
- lower incidence of post-operation wound infections,
- less postoperator pain, in intensity and time, and
- early recovery at normal life, activities and work.

Because laparoscopic appendectomy was associated with low risk of surgical complications, it may be a better alternative for the management of appendectomy than open procedure.

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