Total mesenteric plication with temporary suture support. Prevention of recurrent bowel obstruction due to adhesions

Mesenteroplicatura total con tutor transitorio. Prevención de la obstrucción recurrente por adherencias

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Conflicts of interest
None declared.

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ABSTRACT
Peritoneal adhesions produced as a consequence of manual or instrumental manipulation during surgery cause bowel obstruction. Several procedures have been developed to avoid or minimize adhesions.
Mesenteric plication with temporary suture support organizes the healing process in the bowel in case of high suspicion of adhesions will develop, particularly when bowel obstruction is produced by adhesions.
The basis of this technique is the same as for standard procedures and, thus, there are no controversies about its indications. The rationale of temporary suture support is that when the healing process is over, about two weeks after the intervention, the suture support is no longer needed.
We report three cases of intestinal obstruction undergoing mesenteric plication and temporary suture support, with favorable outcomes.

Keywords: Mesentery plicature, adhesiolysis, intestinal occlusion by adherences.

RESUMEN
La preocupación por los trastornos intestinales y la oclusión, como consecuencia de la formación de bridas peritoneoviscerales producidas por gestos quirúrgicos manuales e instrumentales, ha dado lugar a procedimientos con miras a evitarlas o minimizarlas.
En este marco, la técnica de mesenteroplicatura con sostén transitorio tiene el propósito de favorecer el ordenamiento fibrointestinal, cuando la patología tratada haga sospechar que se producirán adherencias y más aún si la intervención ha sido causada por estas.
Los fundamentos del procedimiento son los mismos que sostienen las técnicas usuales, por lo tanto no hay controversias en cuanto a las indicaciones. La lógica de la sutura transitoria está en que el tutor pierde su objetivo y se retira cuando finaliza el proceso adherencial, alrededor de las dos semanas de la intervención.
Se presentan tres casos de oclusión intestinal operados con el procedimiento, controlados y con buenos resultados.

Palabras clave: Mesenteroplicatura, adhesiólisis, oclusión intestinal por bridas.
**Introduction**

Adhesions formation occurs in a high percentage of cases after abdominopelvic interventions, and generates several and severe complications, as intestinal obstruction. Experimental and clinical studies have demonstrated that adhesions are caused by surgical manipulation and develop as part of the healing process. In both cases, chemical response and cell activation end within two weeks, with fibrosis stabilization. Several procedures have been developed to minimize adhesion formation in a “guiding-the-inevitable” fashion: when adhesion formation is inevitable, adhesions will form in a controlled manner to prevent intestinal obstruction.

The techniques to prevent obstruction are based on the principles established by T. Noble, which consisted in plicating loops of bowel. Childs-Phillips described another technique with its variants in which the mesentery is plicated.

The new technique is to remove sutures once the healing process is completed within 14 days approximately.

Suture removal is justified because sutures are foreign bodies and, once adhesions have developed, the suture support is no longer necessary.

The principles and objectives of this technique are similar to those of others and do not give rise to any conceptual controversy, as the difference with other techniques is that the suture support is removed.

**Methods**

We report three cases of intestinal obstruction undergoing mesenteric plication and temporary suture support between 1981 and 1982.

A 20-year-old male patient admitted due to bowel obstruction. Surgical finding: fibrotic and plastic tuberculous peritonitis. Enterolysis and mesenteric plication with temporary suture support were performed with favorable outcome. The patient was discharged with specific treatment.

A 26-year-old male patient for bowel obstruction. Surgical findings: tuberculoma of the cecum, absence of adhesions in the jejunum and release of parietocolic adhesions. He underwent right hemicolectomy. A diagnosis of pulmonary tuberculosis (TBC) was confirmed. The patient was discharged with specific treatment.

The patient was readmitted eight months later due to bowel obstruction secondary to tuberculous peritonitis. Surgical findings: presence of adhesions between the parietal peritoneum and jejunum. The patient underwent enterolysis and mesenteric plication with temporary suture support with favorable outcome. The patient was discharged with specific treatment.

A 50-year-old male patient underwent cholecystectomy for acute cholecystitis, with favorable outcome.

Five years later, the patient was readmitted for bowel obstruction due to peritoneal adhesions. Enterolysis and mesenteric plication with temporary suture support were performed with favorable outcome and was discharged. Probably, the patient had predisposition for adhesions formation.

**Surgical technique**

The assistant presents the first proximal jejunal loop that is about 20-25 cm away from the ileocecal junction (Fig. 1).

A curved needle threaded with silk suture is inserted by gentle pressure in the mesentery, 2-3 cm from the border of insertion of the jejunum and the folding angle, observing and displacing the vasa recta until reaching the first mesenteric layer (Fig. 2).

This procedure is repeated in the opposite mesenteric fold, creating the first upper initial loop. Then, the next upper loops of the bowel “package” are created.
The inferior loops, directed towards the pelvis, are fixed to the mesentery in the same way (Fig. 3).

Once the mesenteric plication is over, the threads are gently lifted from the ends, observing the shaping of the folds and checking adequate hemostasis. Then, the jejunum and ileum are reintroduced in the abdominal cavity.

The silk threads are exteriorized from the peritoneum to the skin (Fig. 3).

Both ends, at the left and right of the incision, are tied on a rubber tube placed between the points where the threads emerge (Fig. 4).

The knots should be made so that they can be easily unfastened and refastened in the postoperative period, adjusting the tension according to the abdominal distension.

Results

There were no intraoperative or postoperative complications, except for discrete ileus that resolved clinically. The patients were followed-up for two years. None of the patients were readmitted.

The value of this experience is not strong enough to make predictions or to justify its use. However, our aim was to provide a possible resource to those that already exist.

Postoperative outcome and observations

The three patients presented moderate ileus 48-72 hours after the intervention that was more evident in the left abdominal region. Abdominal distension will exert pressure against the pledgets. After antisepsis, the knots are unfastened to release this tension and are then refastened according to the existing distension. Daily monitoring will indicate whether the maneuver should be repeated.

Two weeks after surgery, the threads are cut close to the skin and are gently removed from the other end. If there is some resistance, the threads are left as necessary until they are released by the healing process without any inconvenience.

Discussion

The experience with three cases, which did not present any complications, is not sufficient to draw conclusions. The rationale for using the technique is the same as for standard procedures; therefore, it is a feasible option with outcomes similar to those of permanent suture but without its inconveniences. Traditional techniques are associated with intraoperative difficulties due to edema and distension of the jejunum, and postoperative complications related with permanent suture acting as a foreign body. These disadvantages are avoided by introducing thick silk thread across the mesentery and removing them when the healing process ends and suture support is no longer necessary.

We do not expect this technique to achieve results different from those of other techniques, since it is based on the same concepts, but we do expect fewer complications due to the timely removal of the suture material. In view of these reasons and results, we have continued using this technique in other cases that are not mentioned in this report.