Adhesion Related Disorders

Peritonitis and traumas following laparotomy represent the principal causes of adhesive events, which may give rise to serious pathological consequences. For all practical purposes, these are intestinal occlusion and the so-called Adhesion Related Disorders (ARD). These latter are characterized above all by disturbances arising from intestinal canalization. Symptoms may range from mild abdominal discomfort to serious and invalidating problems: intense abdominal pain, abdominal distension and other disturbances, vomiting, weakness and weight loss resulting from nutritional deficiency.

Diagnosis of ARD is based on:

- the patient's medical history: previous surgeries, peritoneal events, traumas, etc.;
- symptoms: as above, with frequent compromise of psychophysical conditions;
- physical examination: post-laparotomy scarring, abdominal asymmetry, poor treatment options due to distension and pain on palpation (inconstant).

While cases of clear-cut intestinal obstruction necessarily warrant surgery, usually performed in an emergency setting, surgical correction of so to speak chronic ARD - until the advent of laparoscopy - was (and still is) surrounded by doubt. Indeed, adhesiolysis via laparotomy often gives rise to de-novo formation of adhesions; many attempts have been made to prevent their occurrence, namely, prepping of the peritoneal cavity with special solutions, but the recurrence rate remains high. The observation that laparoscopy in general reduces adhesions is thus seen as a valid means to resolve these problems. In addition to the other, numerous, assets of laparoscopic surgery, this advantage has been observed many times in operations after prior laparoscopies and widely documented in the literature. Thus, laparoscopic treatment of ARD has increasingly enjoyed widespread uptake, and results bear out its use.

In our experience of 15 cases treated via laparoscopy, both immediate and long-term outcomes have been encouraging. Beyond ARD in the strict sense of the term, we can also count at least one hundred cases in which a demanding laparoscopic adhesiolysis became necessary in order to perform another operation, a cholecystectomy, for example. Admittedly, when faced with evident intestinal obstruction, we have had to convert the laparoscopic approach to a full-fledged laparotomy.

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As a general rule, we performed these operations with first access in open-laparoscopy. We abstain from using a Veress needle, as we see it to be risky in these cases. When possible, the first trocar is placed mid-line (above the umbilicus), with the subsequent trocars obviously positioned not according to a prescribed arrangement, but to the extent of the operation (and after careful exploration and localization of the adhesions themselves). It often becomes necessary to change the camera port, and to increase the number of ports. Nevertheless, four trocars, all 10 mm, are sufficient.

Intra-abdominal CO_2 pressure is set at 12 mmHg, and when called for and at short intervals, is raised to 14-15. The procedure is completed with careful general exploration of the cavity, above all for the presence of hemostasis, and washing with warm physiological solution. Patients can, on average, be released after a few days (2 to 4).

For learning purposes, the situations to be faced can be divided into

- Parietal - visceral adhesions
- Visceral - visceral adhesions

Naturally, these are features that generally coexist, and both present often important difficulties.

A video follows (video No. 1) that depicts a phase in the treatment of parietal-visceral adhesions: the use of bipolar current (shown here) prevents electrical dispersions when working the near intestinal loops. We have also made use a harmonic scalpel; nonetheless, the technique described here has yielded the best results in terms of safety, precision and speed (partial times must be curtailed as much as possible because the overall procedure is long and demanding for surgeons).

The video that follows here (video No. 2) regards the case of a 40-year-old woman with serious and extremely invalidating ARD. The entire peritoneal cavity was involved: the operation lasted approximately two hours, and some of the salient phases follow:

- Sub-hepatic block;
- Ileum-cecum block: difficulty in detachment from upper and lateral layers (iliac vessels, ureter, etc.);
- Difficulty in untangling the last ileal loops;
- Time-consuming efforts to separate the adhering loops;
- Finally, untangling of the entire intestine down to the ligament of Treitz.

Detachment of the loops from the anterior abdominal wall can prove particularly trying, as can be seen in the following video (video No. 3). Difficulty is also experienced in positioning the trocars: one of the most frequent causes for this are adhesions that form between loops and post-laparotomy scars. These adhesions are very dense, always require sharp instrumentation and present risks of visceral lesions.

We can draw a few conclusions from what has been described above. First of all, the absence or exiguity of adhesion phenomena subsequent to laparoscopic treatment confirms the pivotal role played by peritoneal trauma in their pathogenesis. It follows that all measures should be taken to protect serous structures to the greatest extent possible during laparotomy: prevention is the best “treatment” for adhesions.

Given the disappointing outcomes of treatment via laparotomy, our and others’ results point to the validity laparoscopic adhesiolysis. Attention to certain expedients, such as those described above, makes this approach safe and effective even at long-term.

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