

Medicolegal consequences of postoperative intra-abdominal adhesions

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SUMMARY

Postoperative adhesions are an almost invariable consequence of abdominal and pelvic surgery. Their most important morbidity is small-bowel obstruction, but other sequelae include female infertility and dyspareunia and increased risk of visceral injury at subsequent laparotomy or laparoscopy. Whether chronic abdominal pain is truly a consequence of adhesions is debatable, although it is likely to be accepted as an entity by both patients and their legal advisors. Of 14 successful claims dealt with by a British medical defence organization, 5 were for perforations after laparoscopic division of adhesions, 2 for adhesions after laparoscopic surgery, 1 for infertility as a result of adhesions and 6 for delayed diagnosis of obstruction. General practitioners, surgeons and gynaecologists need to be aware of the increasing burden of medicolegal claims arising from these complications.

INTRODUCTION

Complications resulting from postoperative intra-abdominal adhesions have been the subject of increasing medicolegal litigation, but hard facts are not easily obtained. Repeated letters to the National Health Service Litigation Authority, which is the body responsible for all NHS hospital litigation since January 1990, have not been acknowledged. However, I have been greatly helped by Dr Stephen Green, of the Medical Defence Union, and by Dr Jane Cowan, of the Medical Protection Society, who have provided details of patients' claims and complaints that have reached these organizations in recent years. Although this information is confined to claims made against general practitioners in the public and private sectors and against surgeons and gynaecologists in private practice, it does provide a picture of litigation resulting from the consequences of abdominal adhesions over the past decade.

Adhesions are almost invariable after abdominal surgery. In our review of 210 laparotomies on patients who had undergone one or more previous abdominal operations, 94% had adhesions; the exceptions were patients who had undergone lower segment caesarean section or elective appendectomy¹. Today, abdominal surgery is extremely common in the western world. In 2645 necropsies, Robert Beart, at the University of Southern California in Los Angeles, found evidence of previous abdominal operations, in 32% — a figure that rose to 44% in those over sixty years of age (Personal communication). We can infer, therefore, that nearly one-third of the adult population have intra-abdominal adhesions. The great majority of these are

entirely symptomless; however, even a low morbidity in such a large group of the population will result in a considerable surgical workload.

FREQUENCY OF INTESTINAL OBSTRUCTION

Far and away the most important morbidity from adhesions is the development of acute intestinal obstruction. Indeed, adhesions are responsible for between 60% and 70% of all cases of small-bowel obstruction in the western world². In our own study of 2708 laparotomies, 1% of the patients required surgery for adhesive obstruction within a year of surgery, half of these within the first four weeks. There is also a long-term risk of this complication; of 80 patients admitted with adhesive obstruction, 17 (21%) had had their initial laparotomy ten years or more previously¹.

We have reported³ a study of the entire population of Scotland, some five million, based on figures obtained from the Scottish NHS medical record linkage database in Edinburgh. Patients were identified who had undergone open abdominal or pelvic surgery in 1986 and who had no record of such surgery in the preceding five years. These patients were followed up for ten years. Of the 29 790 patients studied, 5.7% were readmitted with complications directly consequent on adhesions, of which 3.8% required surgery. Of these readmissions, 22.1% occurred in the first year after the initial surgery, but the remainder of readmissions continued steadily over the ten-year period.

MEDICOLEGAL CONSEQUENCES

The following, in order of frequency, are the topics that, in recent years have led to complaints and claims against

medical practitioners: failure of diagnosis, or delay in diagnosis; bowel damage at adhesiolysis (at laparoscopy more than at laparotomy); chronic abdominal or pelvic pain; infertility or risk of infertility; starch granuloma consequent upon use of starch-powdered gloves; and failure to take precautions to prevent adhesion formation.

Between 1989 and 1999, the Medical Protection Society dealt with 13 claims in which adhesions had been implicated. 9 of these involved general practitioners; in all of them the complaint was of delayed or failed diagnosis. 3 claims were made against gynaecologists—one for failure to diagnose and two for bowel damage at adhesiolysis (one at surgery, the other at laparoscopy). The final case involving a surgeon was, again, bowel damage at operative division of adhesions.

The Medical Defence Union was able to supply more comprehensive information. This organization has a membership of some 22 000 general practitioners, 500 gynaecologists and 720 general/vascular surgeons. Over the six years 1994–1999 it received 77 claims pertaining to abdominal adhesions, as follows: failure to diagnose or delay in diagnosis, 21; visceral injury at laparoscopy, 12; visceral injury at laparotomy, 10; pain, dyspareunia, infertility, 7; failure to use 'Sepracoat', 1; failure to warn of risk, 1; and various (including death during adhesiolysis, miscarriage following), 25.

Over an eleven-year period, 14 cases were settled out of court by the Medical Defence Union, the range being £7960–124 261, average per case £50 765. These 14 cases comprised:

- Perforations after laparoscopic division of adhesions, 5
- Adhesions after laparoscopic surgery, 2
- Infertility as a result of adhesions, 1
- Delayed diagnosis of obstruction, 6

STARCH GRANULOMAS

Cases of intra-abdominal starch granulomas, often presenting as postoperative intestinal obstruction, were extensively reported in the 1960s⁴, resulting from the starch on surgical gloves. Since 1971 the US Food and Drug Administration have required warnings of the starch hazard on glove packets, and since 1983 powder-free gloves have been commercially available. Because of the almost universal use of such gloves in the UK, there seem to have been no cases of litigation on this count. There were three court cases concerning starch granulomas in the USA in 1969, 1970 and 1974.

WHAT ARE THE LESSONS TO BE LEARNED?

Surgeons, gynaecologists and general practitioners must be alert to the possibility that obstructive symptoms early and late after abdominal surgery are likely to be caused by adhesions. Delayed diagnosis can result in gangrene and

even perforation of the strangulated bowel, with substantial morbidity and mortality.

The question of chronic abdominal pain as a result of adhesions is a difficult one. The clinical features of acute and of recurrent subacute intestinal obstruction are well known. Whether 'grumbling' abdominal pain can result directly from adhesions is debatable. Most surgeons in the UK doubt the organic basis of this syndrome, which is particularly seen after gynaecological surgery. Clearly, millions of people with postoperative adhesions remain pain-free for life. However, the judiciary are more likely to believe *post hoc, propter hoc* and to side with the complainant. It is easier to understand how a tethered ovary in the pelvis might result in dyspareunia.

The risk of visceral injury, especially of gut perforation, when adhesions are divided at reoperation has lately been quantified in a retrospective study. Workers from the University Hospital at Nijmegen⁵ showed that inadvertent enterotomy occurred in no fewer than 52 (19%) of 270 patients undergoing relaparotomy, with 7 deaths (13%) compared with 16 (7%) in the remaining 218 patients. Independent risk factors for injury to the bowel were obesity, age and three or more previous laparotomies. A similar study of incidence and risk factors for laparoscopic adhesiolysis would be welcome. Clearly, patients need to be warned of this danger preoperatively and surgeons need to be alert to it, ready for immediate repair of any injury. For injuries sustained at laparoscopy, this will mean conversion to an open operation.

Although adhesion formation is almost invariable after laparotomy, surgeons should take all reasonable precautions to limit its extent and, in particular, try to prevent adhesions to small intestine with their risk of bowel obstruction. Starch-powdered gloves must be avoided. Peritoneal defects and the pelvic floor should be left open since these rapidly reperitonealize. Anastomoses should be covered by omentum, which should be drawn down under the inner aspect of the laparotomy incision. There is obvious need for the development of effective and safe anti-adhesion agents.

REFERENCES

- 1 Menzies D, Ellis H. Intestinal obstruction from adhesions; how big is the problem? *Ann R Coll Surg Engl* 1990;**72**:60–3
- 2 Ellis H. The magnitude of adhesion related problems. *Ann Chir Gynaecol* 1998;**87**:9–11
- 3 Ellis H, Morgan BJ, Thompson JN, *et al.* Adhesion related hospital readmissions after abdominal and pelvic surgery: a retrospective cohort study. *Lancet* 1999;**353**:1476–80
- 4 Ellis H. Pathological changes produced by surgical dusting powders. *Ann R Coll Surg Engl* 1994;**76**:5–8
- 5 Van der Krabben AA, Dijkstra FR, Nieuwenhuijzen M, *et al.* Morbidity and mortality of inadvertent enterotomy during adhesiotomy. *Br J Surg* 2000;**87**:467–71