Adhesions: the early history

Harold Ellis

Intra-abdominal adhesions following tuberculous and other peritoneal inflammatory diseases were well recognized by early pathologists, but it was not until the advent of abdominal surgery in the late 19th century that postoperative adhesions, and thus the complication of small bowel obstruction, became common. The first recorded operation for this condition is described.

Until anaesthesia and then antiseptic surgery made abdominal surgery comparatively common and comparatively safe, towards the end of the 19th century, intra-abdominal adhesions were unusual and of little interest to clinicians. The standard textbooks of the early 19th century do not mention this topic. Such great surgical teachers in the UK as Benjamin Bell of the Middlesex Hospital (1801), Astley Cooper of Guy's Hospital (1835) and Robert Liston of King's College, London (1846) do not mention the subject in their surgical writings.

In contrast, adhesions resulting from pathological processes within the peritoneal cavity were well recognized and described as post-mortem findings. For example, Thomas Hodgkin (1836), of Hodgkin's disease fame, commented on the matted bowel found at autopsy in patients dying of tuberculous peritonitis, and on the tendency of adhesions to form in relation to either inflammatory collections of fluid or to the spread of infection from the uterus.

Numerous authors mentioned the temporary adhesions of coagulated lymph in acute peritonitis, and the persistent fibrous adhesions which might subsequently develop, for example Jean Cruveilhier (1849), Karl Rokitansky (1849), James Paget (1870) and Frederick Treves (1888). Matthew Baillie, in his textbook of 1793, noted that he could demonstrate fine adhesions in these permanent adhesions by fine injections; an observation which the author thought he had made for the first time in his Doctor of Medicine thesis in 1962 (Ellis, 1962).

Samuel Gross, in his 'Experimental and critical enquiry into the nature and treatment of wounds of the intestines', published in 1843, is the first person the author has found to have made experimental observations on the formation of adhesions. He found that, following the suture of wounds of the small intestine in dogs, the repaired segment rapidly adhered to neighbouring structures, among which it was sometimes totally buried. He noted that:

> **'...in almost all cases there is an attachment of the omentum to the surfaces and edges of the wound which thus assists in an eminent degree in the process of restoration.'**

The possibility of the relief of intestinal obstruction by operative intervention made surgeons of the late 19th century aware of the diagnosis of adhesions. For example, in 1870, Holmes carefully described patients dying of intestinal obstruction as a result of adhesions of small bowel to the inflamed appendix. Moreover, the early abdominal operations were soon followed by reports of postoperative adhesion obstruction.

FIRST REPORTED CASE

The first case report the author has discovered in which a laparotomy was carried out for obstruction caused by postoperative adhesions was recorded in the *Lancet* in 1883 by William Battle, then a surgical registrar at St Thomas' Hospital, London. The patient, a 43-year-old woman, was admitted under the care of Mr Sydney Jones on 21 June 1882. In 1878 she had undergone removal of 'tumours of a papillomatous character removed from both ovaries, together with a small nodule of solid growth from the broad ligament', and a similar nodule of tumour was left behind in the pouch of Douglas. For 5 weeks before admission she had had frequent attacks of severe cramping abdominal pain. Before admission she had become constipated and vomited brown fluid.

On admission, she was emaciated, the abdomen was much distended and the outlines of coils of bowel were clearly visible. She was

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given belladonna and opium, passed flatus and initially seemed to improve, however, on 28 June she deteriorated, became much more distended, with frequent vomiting of offensive fluid and a rapid weak pulse. 'It was evident that operation was advisable now if anything was to be attempted.'

That night Mr Jones made a midline lower abdominal incision under anaesthesia and with antiseptic precautions. Distended loops of small intestine led down to matted adhesions in the pelvis. The distended small bowel was tapped and a large amount of fluid drawn off. It was impossible to free the bowel from the matted adhesions and so the ileum opening was enlarged and stitched to the abdominal wall as an artificial anus. At first she did well, but over the next weeks she became weaker, febrile and with a rapid pulse. She died on 20 July. At autopsy, the lower ileum and caecum were matted together by adhesions.

Reading this detailed report, it appears that today, with adequate fluid and electrolyte replacement, the patient's life might well have been saved, the ileostomy closed and the adherent mass of bowel short-circuited by means of an ileocolic anastomosis.

Sydney Jones was not a particularly eminent surgeon, but William Battle joined the St Thomas' staff and described Battle's sign (bruising behind the ear) for fracture of the middle cranial fossa of the skull.

CONCLUSIONS

With this circle of increasing numbers of patients subjected to abdominal surgery, increasing numbers therefore developing postoperative obstruction as a result of adhesions, and the possibility of these patients having their lives saved by further surgery, the last years of the 19th century saw the beginnings of what was to become a flood of publications, persisting today, into the aetiology, early diagnosis, surgical management and prophylaxis of intra-abdominal adhesions. HM

Conflict of interest: Professor Ellis is coeditor of Adhesions News and Views.

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KEY POINTS

- Intra-abdominal adhesions were recognized in the early 19th century as consequences of inflammatory diseases such as tuberculosis.
- With the increasing numbers of abdominal operations in the latter part of the 19th century, postoperative small bowel obstruction as a result of adhesions was soon recognized.
- The first operation for this, in 1833, is described.