

# Henri Hartmann and his operation

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## Abstract

Hartmann's procedure, first described by the French surgeon Henri Albert Hartmann in 1921, is one of the most commonly performed operations. This paper examines the history behind this operation and assesses its significance in modern surgical practice.

## Keywords

Henri Hartmann; Hartmann's procedure.

## The procedure

Henri Albert Hartmann was born in Paris on 16th June 1860 as the only son of an Alsatian family<sup>[1]</sup>. He attended medical school at the University of Paris after which he did his surgical training under Felix Terrier who was considered one of the most prominent French surgeons at the time and was renowned for performing the first hysterectomies in France<sup>[1]</sup>. Hartmann joined Terrier at the Hôpital Bichat around 1882 and in 1892 he was appointed lecturer in surgery, Assistant Professor in 1895, Assistant Director of Surgery in 1898 and Professor and Chairman of Surgery in 1909. In 1914, Hartmann accepted the position of Chief of Surgery at l'Hôtel-Dieu, the oldest and most famous hospital in Paris and he stayed there for many years until his retirement in 1930<sup>[2]</sup>.

He first described the operation that became eponymous with his name at the 30th Congress of the French Surgical Association in 1921<sup>[1,2]</sup>. He reported on two patients with obstructive sigmoid carcinoma who were treated with proximal colostomy, sigmoid resection and closure of the rectal stump via an abdominal approach. In particular, he cut across the sigmoid, well above the tumour and then dissected downward to the levator ani. He ligated the middle haemorrhoidal vessels laterally. Anteriorly, he dissected to the level of the seminal vesicles and cut across the rectum at least 3 cm below the tumour. He then closed the rectal stump in two layers, closed the pelvic peritoneum, and brought out the sigmoid colon as an end colostomy<sup>[1-3]</sup>.

Following the operation he characteristically said: "both cases were as uneventful as an operation for a cold appendix"<sup>[4]</sup>. Hartmann developed this procedure in response to a mortality rate of 38% in his patients who underwent an abdominoperineal resection first described by Miles in 1908. Hartmann went on to describe the procedure in 34 patients, 3 of whom died, thus his overall operative mortality was only 8.8%<sup>[1,2]</sup>. Hartmann originally envisaged the operation to be definitive and did not attempt to anastomose the two segments of bowel

although he was aware that other surgeons were able to re-establish bowel continuity if the tumour was in the rectosigmoid part of the bowel. He thought, however, that such an attempt carried too high a risk<sup>[1-4]</sup>.

## Discussion

The operation that immortalised Professor Hartmann is still used in the management of carcinoma as well as the treatment of other conditions such as perforated or obstructing tumours, volvulus of the sigmoid colon, ischaemic colitis, traumatic colonic perforations and radiation injury<sup>[5]</sup>. The procedure is perhaps more routinely used in the treatment of complicated diverticular disease as an alternative to the three-stage procedure developed by Mayo<sup>[6]</sup> and Rankin and Brown<sup>[7]</sup>. The initial procedure involved peritoneal lavage, drainage of any abscess and creation of proximal colostomy. The second stage involved resection of the sigmoid colon with end to end anastomosis. The third stage involved closure of the colostomy after a few weeks to ensure healing of the anastomosis<sup>[6,7]</sup>. In the early 1970s, the three-stage procedure was replaced by the two-stage procedure similar to the one described by Hartmann due to problems with infection<sup>[2]</sup>. Hartmann's operation is now the preferred operation for many surgeons treating complicated diverticular disease. There are several reasons for this: (1) a proximal colostomy does not control the inflammatory process in the distal colon; (2) removal of distal colon even after weeks can be difficult and dangerous because of the residual inflammation; and (3) closure of colostomy carries the risk of multiple operations<sup>[3]</sup>. Another reason that probably explains better why the three-stage procedure was superseded by Hartmann's is the significant difference in mortality rates. The three-stage procedure is associated with mortality of up to 44%, whereas Hartmann's has an overall mortality of around 14%<sup>[5,8,9]</sup>.

Hartmann's operation allows elective restoration of bowel continuity usually after 6 months, thus theoretically reducing the risk of anastomotic leak and overall morbidity. However, it is important to bear in mind that elective reversal of Hartmann's is again associated with considerable postoperative morbidity, anastomotic leak rates up to 30% and mortality of around 14%<sup>[5,8]</sup>. In addition, between 20 and 50% of patients who underwent emergency Hartmann's for acute colonic diverticulitis will not undergo reversal and therefore have to accept living with a permanent stoma<sup>[10,11]</sup>.

More recently, the morbidity and mortality of emergency primary resection with anastomosis (PRA) in the treatment of complicated diverticular disease has been investigated. A systematic review of the literature by Constantinides *et al.*<sup>[8]</sup> illustrated that patients who underwent PRA have a lower mortality than those treated by Hartmann's in the emergency setting and comparable mortality under conditions of generalised peritonitis. The authors note, however, that high quality randomised controlled trials are required in order to establish the significance of these results since there was a considerable degree of selection bias because patients that underwent PRA were carefully selected due to their good prognostic outlook and their capacity to withstand the risk of anastomotic leak or other complications.

## Teaching point

Henri Hartmann was a man of outstanding surgical ability. The operation that immortalised him will be used to treat complicated diverticular disease by generations of future surgeons. Primary resection and anastomosis may replace Hartmann's operation for a specially selected group of patients.

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