นิพนธ์ต้นฉบับ

Surgical management of stab wounds of the colon

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The safety of primary repair of colonic injuries in selected patients has been well documented by several authors. The treatment of 27 stab wounds of the colon at Chulalongkorn Hospital during the last 10 years was reviewed. The results of the study confirm the effectiveness of the treatment modality used at the hospital. The advantages over alternative techniques are the avoidance of a second operation and the untoward effects of a colostomy.

Key words : Stab wounds, Colon.

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การเย็บปิดบาดแผลลำไส้ใหญ่ที่ได้รับบาดเจ็บโดยไม่มี colostomy เป็นวิธีการรักษาบาดแผลของลำไส้ใหญ่ที่ศัลยแพทย์นิยมทำกันมากขึ้นเรื่อย ๆ ในช่วงระยะเวลา 10 ปีที่ผ่านมา มีผู้ป่วยที่มีบาดแผลถูกแทงที่ลำไส้ใหญ่มารับการรักษาที่โรงพยาบาลจุฬาลงกรณ์จำนวน 27 ราย ผู้ป่วยจำนวน 26 รายได้รับการรักษาโดยการเย็บปิดบาดแผลของลำไส้ใหญ่โดยไม่มี colostomy ผลการรักษาเป็นที่น่าพอใจ การรักษาด้วยวิธีนี้มีข้อดีตรงที่ไม่มี colostomy ทำให้ผู้ป่วยไม่ต้องมาทำผ่าตัดปิด colostomy ในภายหลัง

The surgical management of colonic injury has undergone major changes since the beginning of this century. During World War I, most patients with injuries of the colon underwent primary repair, but mortality was exceedingly high.[1,2] Early in World War II, Ogilvie proposed exteriorization of the injured colon or proximal diversion. This policy was subsequently adopted in civilian practice during the post-war period. Since then primary repair of colonic injuries caused by knives and small caliber low-velocity missiles has gradually returned to favor as the standard management.[3-5] The purpose of this study is to review the results of treatment of stab wounds of the colon over a 10-year period at a city teaching hospital.

Table 1. Number of organ injuries.

Number of organ injuries	Patients	
	Number	Per cent
1	10	37
2	10	37
3	6	22
4	1	4

Table 2. Site of colonic stab wounds.

Site of injury	Patients	
	Number	Per cent
Caecum	4	15
Ascending colon	1	4
Hepatic flexure	4	15
Transverse colon	12	44
Splenic flexure	1	4
Descending colon	3	11
Sigmoid colon	2	7

Table 3. Operative procedures and complications.

Procedure	Patients	
	Total	with complications
Primary repair	25	5 (20%)
Exteriorized repair	1	—
Simple closure with proximal colostomy	1	—

Table 4. Complications.

	Complications	Organ injuries	Shock	Outcome	Hospital stay (mean 11.4 days)
Case 1	Wound infection	Transverse colon Small bowel, IVC Mesentery	Yes	Survived	15
Case 2	Wound infection	Sigmoid colon Small bowel Diaphragm	No	Survived	15
Case 3	Wound infection	Hepatic flexure Left kidney	Yes	Survived	16
Case 4	Pneumonia	Descending colon Small bowel, Diaphragm	No	Survived	16
Case 5	Urinoma	Sigmoid colon Small bowel, Left ureter	No	Survived	41

Material and Method

Clinical records of patients who underwent laparotomies for colonic injuries from stab wounds from the year 1979 to 1988 at Chulalongkorn Hospital were reviewed. This analysis was a part of the study of all patients who underwent laparotomies for abdominal stab wounds. The indications for exploratory laparotomy included shock, abdominal signs of peritonitis, evidence of gastrointestinal bleeding and evidence of peritoneal penetration either from local wound exploration or from evisceration of the omentum or bowel. Shock was defined as a systolic blood pressure of less than 90 mmHg. at admission or during surgery. Of the four patients who were in shock on arrival, two developed wound infection. There was no obvious leakage from the suture line in any patient.

Apart from the patient who exsanguinated in the operating room, there was no post-operative death.

Discussion

Our results have shown that primary closure of stab wounds of the colon in a city teaching hospital-setting is safe. The absence of leakage after primary repair confirms the efficacy of this simple method of treatment of colonic stab wounds.

Three cases of wound infection and one case of pneumonia were acceptable post-operative compli-cations in view of the emergency operation and the potential for contamination from the colonic wounds. The case of urinoma resulted from an overlooked ureteric injury at the initial operation and was not related to the method of repairing the colonic wound.

All the complications developed in patients who had multiple organ injuries, and two of them had been in shock. These associations are in agreement with previous studies.[6,7] The association between multiple organ injuries and infective complications is presumably related to the immunologic suppression that occurs in severely traumatized patients. Although there was no clinical suture line dehiscence in this study, primary repair in the presence of prolonged shock on admission could be hazardous.[8] Systemic hypoperfusion initiates a sequence of cellular changes that render the patient more susceptible to the otherwise tolerable insults from severe visceral injury and to infection. Sustained hypotension also induce a reduction in bowel perfusion which may contribute to anastomotic dehiscence and even spontaneons colon necrosis.[8,9]

The safety of primary repair of colonic injuries in selected patients has been well documented.[10-14] Alternative treatments of colonic stab wounds

include simple repair with a proximal colostomy, exteriorization of the injured colon as a colostomy and exteriorization of the repaired colonic segment. These modalities require a second operation to close the colostomy or to return the healed exteriorized segment back into the abdomen. Therefore they should be reserved for the severely traumatized patients and those with marked fecal contamination.

Summary

A retrospective study of patients with colonic injuries from stab wounds in a city teaching hospital showed that primary closure is effective and safe in most patients. The advantages over alternative techniques are the avoidance of a second operation and the untoward effects of a colostomy. Colostomy or exteriorization should be reserved for patients with high risk of suture-line leakage, such as the presence of prolonged shock, severe multiple visceral injuries or gross fecal contamination.

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