Acute Diverticulitis: 5 Years Experience in a Teaching Hospital in Kuwait

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Key Words

Diverticulosis · Diverticulitis · Epidemiology ·
Laparotomy · Percutaneous drainage ·
Treatment

Abstract

Objective: To evaluate the diagnostic and therapeutic modalities of all patients admitted to a hospital over a period of time. **Methods:** Review of the medical files of 60 cases of colonic diverticulitis seen over a period of 5 years at the Amiri Hospital, Kuwait, which serves a population of about 150,000. **Results:** Two thirds of our patients were females. The age at presentation was lower (56.6 year) than in the West. The commonest presenting manifestation was left iliac fossa pain and tenderness. Plain abdominal X-ray and an erect chest X-ray were the most valuable diagnostic tools. Ultrasound scan was helpful in percutaneous drainage of pericolic abscesses. Combined CT scan with water-soluble enemas is recommended once the patient's condition is stable. **Conclusion:** The

majority of conservatively managed patients responded well to treatment. Surgery should be reserved for those presenting with generalized peritonitis (6/60), for the very few who do not respond to the conservative modality (4/54), or those who come back with recurrent diverticulitis.

Introduction

Diverticular disease of the colon is prevalent among the populations of affluent western countries. In the United States, one third of the population will have diverticular disease by the age of 50, and two thirds by the age of 80 [1]. Despite this high cumulative incidence, only 10–20% will suffer from complications [2, 3]. The natural history of this disease is poorly understood and the precise pathogenesis is unclear [4, 5]. However, dietary factors such as decreased intake of grain fibre and increased consumption of beef, beef fat and salt have been implicated in the in-

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creased incidence of the disease in the United States [6, 7]. The aim of this study is to evaluate the diagnostic and treatment modalities, together with the final outcome of all patients with acute diverticulitis admitted to the surgical department of the Amiri Hospital between 1989 and 1993.

Patients and Methods

We reviewed the medical files of all patients admitted to the Amiri Hospital with a diagnosis of acute diverticulitis over a 5-year period from 1989 to 1993. There were a total of 60 patients, 40 females and 20 males (2:1). The mean age at presentation was 56.6 years, ranging from 32 to 74 years. The ratio of expatriate patients (Asians, Europeans, Africans and others) to local citizens was 2:1. The majority of patients were managed conservatively (group A), and the rest surgically (group B). The different modalities of treatment and the final outcome of these patients were then analysed.

Results

Clinical Presentation

All patients had lower abdominal pain/tenderness (100%). The pain was frequently localized in the left iliac fossa (90%) followed by the suprapubic area (10%). Ninety percent presented with signs of localized tenderness and only 10% had generalized peritonitis. An inflammatory mass was felt in the left iliac fossa in only 20% of the patients. Bleeding per rectum was noticed in 12% whereas changes in bowel habits were documented in only 10% of patients. Constipation was a common symptom reported in 75% of patients. The majority of the patients were febrile (70%), and 25% of the patients had nausea and vomiting.

Investigations

Plain X-ray of the abdomen and an erect chest X-ray performed before admission in

the emergency room proved valuable in supporting the clinical diagnosis of an acute intra-abdominal inflammatory process. There were signs of generalized ileus in 38%, a sentinel loop in 18%, pneumoperitoneum in 7%, and signs of intestinal obstruction in 3% of the X-rays. Leucocytosis between 12.8 and $19.2 \times 10^9/l$ was seen in the majority of patients (85%). Abdominal ultrasound was performed in 44 patients (73%) and was informative in only 11 patients (25%) where it revealed a soft tissue mass in 8 patients and an abscess cavity in 3 patients. Nineteen patients out of 44 (43%) had a non-conclusive ultrasound examination. Water-soluble contrast enema was performed in 10 patients (16.6%) showing evidence of diverticular disease, and peridiverticulitis in 7 (12%), diverticular perforation in 2 patients (3%), and sigmoid colon obstruction in 1 case (1.6%). The sigmoid colon was involved in all cases of diverticular disease in our series and was the sole segment involved in 58% of our cases.

Treatment Modalities

Group A: Conservative Management. The majority of the patients, 54 in number (94%), were treated conservatively as their vital signs were stable and their condition improved rapidly with intravenous antibiotics. Cephalosporin with metronidazole was administered to 42 patients while ampicillin with gentamicin plus metronidazole was given to 12 patients. Fifty (93%) patients responded favourably to this management. They were pain-free within 3–5 days and their fever and abdominal signs had disappeared. These patients were discharged from hospital 5–11 days later (mean 7.8 days). Four weeks after discharge double contrast barium enema was performed on these patients at an out-patient clinic. The additional 4 patients assigned to conservative treatment and who did not improve after 48–72 h, had CT scans which demonstrated a

pericolic abscess in 2 patients. This was drained percutaneously under ultrasound guidance. The other 2 patients underwent laparotomy which revealed severe local inflammatory process that required resection and a Hartmann's procedure.

Group B: Surgical Management. Six patients (10%) presented with signs and symptoms of generalized peritonitis. Two additional patients from group A who failed to respond to conservative treatment underwent surgery. In all cases, free pus was found in the peritoneal cavity and complete resection of the diseased segment with a Hartmann's procedure was established in 6 patients. One patient had a distal mucous fistula. One patient had an extended left hemicolectomy with an end colostomy because of a suspicious obstructive mass in the sigmoid colon. The histopathology of this mass showed adenocarcinoma of the distal sigmoid, Duke B2 with no lymph node metastases. The tumour margins were free. Four to 6 weeks after discharge these patients were re-admitted to the hospital to restore the continuity of the colon following contrast studies. Colocolic anastomosis was performed in 7 patients and a colorectal anastomosis on 1 patient. The mean hospital stay of group B was 13 days (9–54 days). There was no hospital mortality. Two patients had surgical wound infection which healed with antibiotics and local wound dressings. Deep venous thrombosis was diagnosed in 1 patient who was treated with systemic anticoagulants.

Follow-Up

The study period covered 5 years from 1989 to 1993, which includes the year of, and those following the Iraqi invasion of Kuwait. The pre-invasion population of Kuwait had a high level of expatriate labour (60%), as reflected in this study, which has a ratio of 2:1 expatriate to local patients. However follow-

ing the invasion fewer expatriates were allowed or wanted to return to Kuwait, as was apparent in the number of patients attending the follow-up clinics (42%). The follow-up period was from 9 to 42 months, with a mean of 22 months.

Twenty out of 25 patients from group A who were followed up were asymptomatic having followed a high-fibre diet. The remaining 5 had recurrent attacks of diverticulitis which necessitated hospital admission. Of these, 3 underwent an elective one-stage resection of the diseased colonic segment with primary colonic anastomosis. One patient was an elderly diabetic who died of severe septicaemia following a subsequent attack of diverticulitis. The 5th patient was advised surgery due to recurrent attacks of diverticulitis, but refused and is still receiving conservative treatment at the out-patient clinic.

Discussion

Diverticular disease of the colon is considered a major 20th century disease of the West. Its increased incidence is attributed to the refinement of food, a low roughage diet in the West, and an aging population. It has been reported that two-thirds of those who are 85 years of age will have colonic diverticulae [1]. The incidence rises from 5% at the fifth decade to 50% in the ninth decade [7, 8]. This disease was not known in the Middle East until the introduction of westernized dietary habits in the last two decades. Now more cases are presenting at the local hospitals with complications of the disease. We have identified 60 cases in a 5-year period in a population of 150,000. The female:male ratio was 2:1, which compares well with the literature [7]. However, our patients presented at a much lower age [7, 8]. We found that a plain abdominal X-ray and an erect chest X-ray are

Fig. 1. Algorithm. Guidelines in the treatment of acute diverticulitis. NPO = Nil per oral; GG = gastrografen; OPD = out-patient clinic; Ba. = barium.

the most valuable investigation tools in the initial assessment of these patients. Lower abdominal ultrasound was reported to be helpful with a sensitivity and a specificity of 86 and 80%, respectively [14, 15]. We did not find this modality to be of help in the initial assessment of this group of patients since useful information was obtained in only 25% of

those who had ultrasound (11/44). We think this could be due to the operator-dependent nature of ultrasound, which is often done at night by the junior radiologist. However, we found ultrasound was valuable in the localization of intra-abdominal abscess and percutaneous drainage in some patients who did not respond conservatively. Water-soluble con-

trast enemas were found to be valuable in the diagnosis of diverticular disease and to exclude coexisting malignancies. The radiological features of diverticulitis are described by Kourtesis et al. [12]. Hulnick et al. [16] described the CT scan criteria of acute diverticulitis.

In this series, we combined CT scan with water-soluble enemas in 4 patients. The information gained was beneficial to influence management. This combination of diagnostic procedures is recommended after stabilizing the patient in the ward whenever these facilities are available. The distribution of diverticular disease in the colon in our patients was similar to that reported in the literature. Markham [23] reported that right-sided diverticulitis was typical in Asians (>75%); we saw only 1 case in our study who was African.

Conservative management is recommended for those cases of diverticulitis, unless there are clear indications for surgical intervention. Our patients' response to this modality was similar to that in the literature [17–19]. After discharge from the hospital only 42% completed long-term follow-up.

Twenty percent of them developed recurrent symptoms which necessitated elective colonic resections. Parks [7] indicated that in their patient population, 40% developed recurrent attacks. The incidence of complications rises from 20% after a single attack of diverticulitis to 60% with recurrent attacks [7, 20, 22, 24]. Freischlag et al. [21] reported that 77% of their patients under the age of 40 required surgery during their first episode of diverticulitis, and they recommend elective operations for all patients under 50 who have a single successfully treated episode of acute diverticulitis. Our low mortality rate (1 patient) reflects our younger population with less concurrent disease.

This retrospective study shows that patients with diverticular disease of the colon in this part of the world are younger than in the West [7]. Conservative management was found to be an effective modality in the majority of these patients, while recurrent acute episode of diverticulitis invite surgical resection of the diseased colonic segment. We are now following the algorithm advocated in the article (fig. 1), recommending it for treating cases of acute diverticulitis.

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