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Laparoscopy in the evaluation and treatment of patients with AIDS and acute abdominal complaints

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Abstract
Background: The evaluation of AIDS patients with acute abdominal complaints (AAC) is quite difficult, and surgical intervention is associated with a high complication rate. The intent of this study is to evaluate the application of laparoscopy in the diagnosis and treatment of AIDS patients with AAC.
Methods: This is a retrospective analysis of 10 consecutive AIDS patients who presented with AAC. Each had evaluation by a surgical team with subsequent laparoscopic intervention. The charts were reviewed for age, sex, time with AIDS, AIDS comorbidities, evaluation modalities, findings, treatment modalities, and outcome.
Results: Laparoscopy resulted in the successful surgical treatment of four patients, diagnosis of medically treatable conditions in four patients, and alteration of the incision site in the remaining two patients. Each patient thus received direct benefit from laparoscopy. Two complications, in the converted patients, and no mortalities were encountered.
Conclusions: Laparoscopy is a safe and effective interventional modality in the diagnosis and treatment of AAC in the AIDS patient.

Key words: Laparoscopy — Acquired immunodeficiency syndrome — Acute abdomen

The increasing incidence of HIV and AIDS is well recognized in the United States. AIDS has become the leading cause of death for men ages 25–44 in the United States [5]. There were over 501,100 cases of AIDS in the United States as of 1995 [10]. This comes from a total of well over 2,000,000 cases of HIV. The problem is not isolated to the United States. It is estimated that there are over 4.5 million cases of AIDS, 18 million cases of HIV in adults, and over 1.5 million cases of HIV in children worldwide. In Georgia alone, there were over 14,000 cases of AIDS with over 8,000 attributable deaths as of February 1996 [7]. In Atlanta, tenth in the United States for cumulative cases, we have seen an increasing population of patients with unique needs blended with unusual clinical presentations [7, 8].

The increasing number of patients with AIDS achieving longer survival is destined to increase the number of patients requiring surgical consultation for evaluation of abdominal complaints. The prohibitive morbidity and mortality have increased the difficulty of decision-making in these patients. Laparoscopy is a safe mode of evaluation and therapy well suited to bridge the dilemma of uncertain diagnosis which may differentiate medical versus surgical therapy. In addition, laparoscopy can often provide definitive therapy. We have undertaken a review of some particularly difficult cases to illustrate these issues and help understand the role of laparoscopy.

Materials and methods

The admission records of Georgia Baptist Medical Center (GBMC) from January 1993 to December 1995 were reviewed to identify AIDS patients admitted with acute abdominal complaints for whom a surgical evaluation was undertaken. Of this group, 10 patients were identified in whom laparoscopy was utilized in their evaluation or therapy (Table 1). During this time period, 1,930 cases of laparoscopy were performed at GBMC. Age, sex, time with AIDS, evaluation modalities, findings, treatment modalities, and outcome were noted.

Results

There were nine males and one female with an average age of 34 (28–40) years. The time with clinical AIDS varied greatly, average 6 (1–12) years. Two presented as the index presentation of AIDS, requesting testing on diagnostic admission. Preoperative comorbidities included atypical mycobacterium infection in three, CMV retinitis in two, CNS toxoplasmosis in one, cryptosporidiosis in one, tertiary

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Table 1. Patient summary

Preop diagnosis	Postop diagnosis	Procedure	Open	Complication
Non specific				
FUO, abd pain	Diffuse peritoneal T-cell lymphoma	Diagnostic Laparoscopy	No	None
FUO, abd pain	CMV peritonitis	Diagnostic Laparoscopy	No	None
Abd pain	Metastatic melanoma to SB	Lap assisted SB resection	No	None
RUQ complaints				
Acute cholecystitis	Adenocarcinoma gallbladder metastatic	Lap Cholecystectomy IOC	No	None
Acute cholecystitis	Acute cholecystitis CMV/Crypto	Lap Cholecystectomy IOC	No	None
Acute cholecystitis	Miliary hepatic abscesses	Diagnostic Laparoscopy	No	None
RLQ complaints				
Acute appendicitis	Acute appendicitis focal perforation	Laparoscopic Appendectomy	No	None
Acute appendicitis	Acute ileitis/typhlitis	Diagnostic Laparoscopy	No	None
Acute appendicitis perforated	Perforated ulceration small bowel	Converted Open small Bowel resection	Yes	Small bowel obstruction
Acute appendicitis	Infected hemorrhagic ovarian cyst	Converted Open salpingo-oophorectomy	Yes	Pneumonia

Lap, Laparoscopic; FUO, Fever of unknown origin; RUQ, Right upper quadrant; RLQ, Right lower quadrant; IOC, Intraoperative cholangiogram; Abd, Abdominal; CMV, Cytomegalovirus; Crypto, Cryptosporidiosis

syphilis in one, multiple active sexually transmitted diseases in one, and active IV drug abuse in two (Table 2). Based on clinical presentation the patients were placed into one of three general categories: nonspecific abdomen, right upper quadrant complaints, and right lower quadrant complaints.

The nonspecific abdomen group consisted of three patients: T-cell lymphoma of the peritoneum, metastatic small-bowel melanoma, and CMV peritonitis. They all had fever of unknown origin and generalized vague abdominal complaints. Their clinical exams all indicated acute processes. However, no clinical exam alone mandated surgical exploration. Extensive workup, including radiologic and laboratory evaluation, was nondiagnostic in each patient except for the one with the T-cell lymphoma. In this case, the gallium scan showed diffuse uptake in the peritoneal cavity. Each patient benefited from surgical exploration and was spared the morbidity of a laparotomy. The patients underwent complete abdominal exploration with cytology, cultures, and tissue procurement. The small bowel with the melanoma metastasis was resected in a laparoscopy-assisted fashion with a 5-cm incision. No complications were encountered in this group.

The right upper quadrant complaint group included three patients as well: adenocarcinoma of the gallbladder, cryptosporidiosis/CMV cholecystitis, and multiple hepatic granulomatous abscesses. The first two patients had many comorbid factors, avoided delay in therapy, and received significant palliation. The last patient had a minimally invasive, definitively diagnostic procedure after previous diagnostic modalities made an erroneous diagnosis. A laparotomy was avoided in this patient, who did well with medical therapy for a medically treatable condition. No complications arose in this group.

Table 2. Preoperative comorbidities in study population

Atypical mycobacterium infection	3
CMV retinitis	2
CNS toxoplasmosis	1
GI cryptosporidiosis	1
Tertiary syphilis	1
Multiple STDs	1
Active IVDA	2

CNS, Central nervous system; GI, gastrointestinal; STD, Sexually transmitted disease; IVDA, Intravenous drug abuse

The final group presented with right lower quadrant complaints. This group included four patients: acute appendicitis with focal perforation, small-bowel ulceration and perforation, acute ileitis/typhlitis and infected, hemorrhagic ovarian cyst. These patients presented with right lower quadrant pain and a white blood cell count of 0.8–6.7. The time with AIDS varied from 8 years to index presentation (for the patient with appendicitis). The patients with appendicitis and ileitis had uneventful postoperative courses. The two other patients underwent conversion to open due to the laparoscopic findings of diffuse peritonitis. Both of these patients had complications, pneumonia, and small-bowel obstruction. They had prolonged hospital stays but eventually recovered to baseline and were discharged.

No mortality was encountered in these patients. The

morbidity was 20%. Both complications were encountered in the patients converted to open laparotomy.

Discussion

These cases illustrate the variety of findings one may encounter while evaluating the acute abdomen of a patient with AIDS. The number of patients with HIV and AIDS is growing rapidly in our country. More effective medical management of the condition is advancing HIV into the class of chronic diseases. Surgeons are going to be called on to evaluate patients with HIV and AIDS more frequently. Due to the unique nature of the immunological influence these patients are under, they often present with unique pathological processes [11]. However, they are still subject to more common conditions such as appendicitis and cholecystitis. Many of these AIDS-related processes, including some of the bizarre infectious presentations, i.e., CMV cholangitis and infectious ileitis, are preferably treated medically [6]. However, some are difficult to differentiate from surgical emergencies. In addition, many common surgical processes may present very oddly [1]. The survival of HIV and AIDS patients is being prolonged on a scale of years. Ninety percent of these patients will develop gastrointestinal symptoms prior to their death [9]. Approximately 4% will require surgery. The patient with AIDS carries a substantially increased morbidity and mortality above the baseline. Mortality for urgent operation (11–70%), open cholecystectomy (33–38%), and even laparoscopic cholecystectomy (0–33%) are well above the accepted average for non-HIV patients and HIV-positive non-AIDS patients [3,4,9]. The morbidity is extremely high as well. The surgeon's awareness of this substantial morbidity and mortality has often led to uncertainty about the timing and type of intervention to best serve the patient without undue risk to the patient, surgeon, and staff [1].

These cases illustrate cooperation with the infectious disease specialists to allow the surgeon an early opportunity to evaluate the patient. This is facilitated by having a safe modality to diagnose and often treat these patients. Laparoscopy can be utilized to complete a thorough examination of the peritoneal cavity and obtain cultures, tissue, and cytology. When conversion is needed, appropriate initial incisions can be made, i.e., avoiding a right lower quadrant incision when a formal laparotomy is needed. We have found that the low morbidity has encouraged earlier intervention in this population. In all of these patients prolonged delay may have proved disastrous.

Conclusion

Laparoscopy is a technique proven to be effective in evaluating and treating a variety of abdominal processes. In the AIDS patient it can be used to evaluate and treat both specific and nonspecific clinical presentations [2,12]. The surgeon can obtain fluid for cytology and culture and tissue for inspection. The abdomen can be visualized. Definite therapy may be possible, and if not, it can guide laparotomy. Laparoscopy can be used to bridge the gap of noninvasive diagnostic investigation and laparotomy. Thus delay in surgical investigation is no longer excusable solely due to a concern over prohibitive morbidity and mortality to the patient. As well, as the primary individual at risk, the surgeon (surgical team), should play a major, active role in conjunction with the infectious disease specialist, in evaluating these patients for appropriate timing and method of surgical intervention. In order to do this we must remain educated concerning the course, copathology, and management of the patient with AIDS.

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