Aids and the Surgeon

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Abstract

INTRODUCTION

AIDS – acquired immunodeficiency syndrome was first reported in the United States in 1981 and has since become a major worldwide epidemic. AIDS is caused by the human immunodeficiency virus (HIV) which by killing or damaging the cells of the body's immune system progressively destroys the body's ability to fight infections and certain cancers.

Globally, India is second only to South Africa in terms of the overall number of people living with the disease. Due to a steady increase in the Aids epidemic, it is likely that many surgeons will encounter and will have to care for patients with HIV positive serology or AIDS.

For many years, scientists theorized as to the origins of HIV and how it appeared in human population, most of them believing that HIV originated in other primates. In 1999, an international team of researchers reported the origin of HIV-1; the predominant strain of HIV in the developing world. A subspecies of chimpanzees native to west equatorial Africa has been identified as the original source of virus. The researchers believe that HIV-1 was introduced into the human population when hunters were exposed to infected blood.[1]

The major group of people at risk are: injection drug users, recipients of HIV infected blood or blood products, people with multiple sexual partners, commercial sex workers and their partners, gay-men, healthcare workers etc.

A patient who is infected with HIV, but is asymptomatic or widely asymptomatic is referred to as “HIV positive”. AIDS represents an advanced stage of HIV infection, when the patient suffers from a characteristic range of opportunistic infections. During this stage the CD^4 cell count is usually below 200 cells/UL. It is estimated that about 80-90% of HIV infected persons are “typical progressors” and experience a course of HIV disease with a median survival time of approximately 10 years. 5-10% of HIV infected persons are “rapid progressors” and experience an unusually rapid (3-4 years) course of HIV disease. About 5% of HIV infected persons do not experience disease progression for an extended period of time (at least 7 years) and are termed “long term non –progressors.”[2]

To a greater or lesser extent, HIV disease now influences the performance and outcome of surgery in every country of the world. Many HIV patients are not recognized as such because they are asymptomatic and most of them will be early sufferers. This is especially relevant in trauma cases, where more than half of the HIV positive patients admitted will have no symptoms or signs of the disease. Since a surgeon always comes in contact with blood, blood products, infected instruments and body fluids, he needs to observe two main considerations:

- Precautions must be applied universally to prevent contamination and possible infection of medical staff.
- The staff should be trained to recognize the symptoms and signs of HIV disease, so that in an emergency situation, they can tailor treatment to the greater benefit of the patient and obtain informed consent for the procedures that they propose.3

SAFETY OR PRECAUTIONARY MEASURES

Universal measures need to be observed in dealing with sharps, blood, blood products, instruments, body fluids and theatre wastes because every patient cannot be tested for HIV before treatment and the window period of the infection can be most deceptive. Precautions to be observed are:

- Wear a glove before inserting an I/V cannula, endo-tracheal tube or a catheter.

- Needles to be disposed of into designated sharp containers immediately after use and never replaced in their protective sheath.
- Gowns with impervious sleeves and front to be used on theatre suits.
- Spectacles or a visor should be worn to protect the eyes.
- Water proof/ blood proof foot wear to be worn.
- Double gloves to be used during surgery to secure yourself from accidental pricks of weeds or bone fragments.
- Sterile cotton gloves to be used in addition to double gloves when sharp wires are in use during surgery.
- Barrier nursing to be observed during surgery i.e., the scrub nurse should offer or take back any instrument in a kidney dish.
- Make large incisions, expose operative area with a minimum of retraction.
- Avoid contact continuously with blood and body fluids.
- Immediately go for post exposure prophylaxis in case of any accidental pricks.3

PREOPERATIVE ASSESSMENT FOR SURGERY

In history lay emphasis on:

- Recurrent respiratory tract infection.
- Persistent diarrhea 1 month duration.
- Frequent fever
- Weight loss
- Frequent skin infections
- Any history suggestive of tuberculosis, and herpes zoster.

In examination lay emphasis on:

Mouth faucial inflammation, thrush, and purple stain of hard palate (Kaposi's sarcoma), hairy leukoplakia of tongue

Skin look for herpes zoster or its scars, furunculosis or its scars, any other opportunistic skin infections

Lymph nodes symmetrical enlargement of posterior cervical, occipital, axillary and epitroclear nodes.

SURGICAL TREATMENT CONSIDERATIONS

Some diseases following HIV infections, which demand a surgical intervention, are major infections and neoplastic processes.

Abscesses: this is a very common manifestation of HIV positive patients. Most frequently surgeons encounter now lactating women with breast abscesses and young adults with pyomyositis (78% are HIV positive). Such patients obviously need a wide drainage and very high doses of broad-spectrum antibiotics.

Cytomegalovirus (CMV): CMV is a member of the herpes virus family and is the most common opportunistic pathogen in AIDS. It is found in nearly all homosexual men with the disease. Symptomatic gastrointestinal involvement is noted frequently$_4$. It is usually associated with a wide range of conditions including idiopathic steatorrhoea, mucosal ulceration, vasculitis, perforations of the small bowel and colon, lesions simulating inflammatory bowel disease, hepatitis and acalculous cholecystitis$_5$. There is no cure but gencyclovir may limit the progress of disease in the GI tract.

CRYPTOSPORIDIUM

Cryptosporidium are protozoan parasites of subphylum sporozoa. The organism is frequently isolated from patients with AIDS and has been associated with liver and biliary tract involvement, gastroenteritis, and intractable diarrhea and weight loss. Diagnosis is by detection of cryptosporidial oocysts in stool specimens or by detection of the parasite on biopsy specimens. A variety of antibiotics and antiparasitic drugs have been used in the treatment, although none has been clearly successful.

Empyema: is usually of insidious onset and tuberculous in origin. It is a common problem in HIV patients. Underwater seal drainage may not suffice in many cases; only thin pus may drain comfortably through this tube. Open drainage is usually an adequate treatment.

Necrotizing fasciitis: usually demands radical and repeated excision of all infected tissue with a good margin of normal tissue. If the facilities of a hyperbaric oxygen chamber are available, it acts as a useful adjunct to radical surgery.

Mycobacterium avium intracellulare (MAI): This is an ubiquitous organism that has been rarely associated with disease processes before AIDS. Infection with MAI has been associated with severe abdominal pain, fever, weight loss, hepatomegaly, enterocolitis and the formation of inflammatory intra abdominal masses. An infection of the terminal ileum simulating Crohn's disease has been described[6]. Characteristic findings of MAI infection on CT scan include the presence of diffuse jejunal wall thickening and enlarged lymph nodes. Definitive diagnosis is made by demonstration of acid fast organisms in biopsy specimens. Disseminated infections are resistant to therapy.

Osteomyelitis: Most frequently distal femur and proximal tibia are common bits for hematogenous osteomyelitis in adult HIV patients. Usually the disease is bilateral. Radiographs show diffuse osteopenia and bone destruction with little periosteal reaction. This is a very difficult disease to treat. The bacteriology is often a mixture of staphylococci and bowel organisms and only amputation will remove the infection.

Bacteraemia: It is usually frequent in patients with HIV disease and can also lead to infection of implants. So it is wise to avoid the use of implants wherever possible and to remove metal fixations after fractures have healed.

Kaposi's Sarcoma (KS): It was originally described as an indolent multicentric neoplasm occurring in older Caucasian men characterized by pigmented skin nodules on the lower extremities. The form of KS that affects patients with AIDS is a much more aggressive neoplasm with prominent lesions in the upper extremities and is associated with early lymph node metastasis. Gastrointestinal KS is associated with hemorrhage, obstruction and intussusception[7]. Radiographic findings are diagnostic in many cases and the diagnosis is confirmed by endoscopy and biopsy.

Lymphoma: AIDS associated lymphomas tend to be aggressive and generally respond poorly to treatment. The presence of a non-Hodgkin's lymphoma in a patient with HIV infection establishes the diagnosis of AIDS; AIDS associated lymphomas have characteristics which differentiate them from the typical lymphomas. There is a high incidence of extranodal involvement and gastrointestinal involvement with obstruction, hemorrhage or perforation being common complications. Surgery may be required in some cases to establish the diagnosis or to treat complications. However, it has been well demonstrated that surgical intervention to debulk tumor mass does not improve survival of these patients.

ORGAN SYSTEM INVOLVEMENT

Since many of the manifestations of AIDS may mimic acute surgical problems, a thorough attempt should be made to establish that a surgical condition exists. If indicated, a thorough history and physical examination can be supplemented by abdominal sonography or computerized tomography. The presence of positive cultures or biopsies does not rule out the possibility of a co-existing lesion. A consideration of gastrointestinal organ systems will present specific conditions that are frequently encountered.

ORAL CAVITY AND ESOPHAGUS

Patients may present initially with oral lesions or may develop lesions later in the course of the syndrome. Oral candidiasis is the most common lesion seen and suggests esophageal involvement if associated symptoms are present.

Hairy leukoplakia is another specific lesion, which on biopsy has fibrillar projections and no mononuclear response. Papilloma and Epstein – Barr viruses have been localized in these lesions with electron microscopy. The recommended treatment for these lesions is surgical excision[8].

Oral KS lesions have been reported to cause pharyngeal obstruction[9]. Therapy for KS of AIDS has not been as effective as for classic KS. Biopsy or excision of the lesion may be required for obstruction or diagnosis. The lesion may be confused with inflammatory or vascular lesions.

Candida, herpes virus or cytomegalovirus 10 may cause esophagitis in the AIDS patient. Diagnosis is made by oesophagoscopy and biopsy. Esophageal ulcers secondary to HIV infection have also been found to contain virus in the base of the ulcer under electron microscopy. There is no treatment for these lesions.

STOMACH AND DUODENUM

Most of the lesions in stomach and duodenum are caused by KS, CMV or lymphoma. These lesions can be associated with hemorrhage or obstruction. These tumors are generally of high grade and surgical excisions are associated with early recurrences.

CMV is also associated with severe gastritis and duodenitis and has also been associated with chronic ulcerations of G.I. Tract.

LIVER AND BILIARY TRACT

The surgeons may be called to evaluate fever, right upper quadrant pain and cholestasis in a patient with AIDS. Diagnosis is made more difficult by associated type A or type B hepatitis. The symptoms may even mimic choleystitis. The diagnosis is established by liver biopsy with the finding of intranuclear inclusion cells. MAI can also cause hepatitis. This syndrome is associated with hepatomegaly and an increased level of alkaline phosphatase.

CMV is also associated with acalculous choleystitis, dilatation of intra & extrahepatic bile ducts and cholangitis[11]. Cholecystitis and cholangitis may also occur secondary to obstruction of the cystic or common bile duct from lymph-adenopathy, KS and lymphoma.

SMALL BOWEL

Lymphomas of small bowel are usually symptomatic and are known to cause pain, weight loss, obstruction, hemorrhage and perforation. Lymphomas in patients with AIDS tend to be extranodal. CT scan is usually diagnostic in more than 90% of patients [12].

Intussusceptions of small bowel can also be seen associated with KS lesions or lymphoid hyperplasia[13].

MAI has been associated with a syndrome resembling terminal ileitis of Crohn's disease[14]. CMV involvement of small bowel may also suggest inflammatory bowel disease. It can also present with perforations but usually with a fatal outcome.

Appendix: Acute appendicitis usually can be very difficult to diagnose until the disease has advanced to perforation in patients with AIDS. The most common presentation reported usually is worsening abdominal pain and diarrhea. The presence of fever or leukocytosis has not been reliable. The morbidity of a negative appendectomy can be significant in these patients, therefore the use of USG to supplement the diagnosis is advised[16]. The surgeon should not be misled by positive stool cultures for enteric pathogens in ruling out acute appendicitis because they will be positive in a majority of patients.

Colon: Homosexual men with AIDS are usually prone to develop " Gay bowel syndrome" i.e., risk for unusual opportunistic infection like enterocolitis, salmonella, shigella, camphylobacter, entamoeba and giardia. There infections are often associated with abdominal pain and diarrhea and at times may be severely affected by CMV with ulceration and perforation[18].

ANUS AND RECTUM

Anorectal disorders represent the most common surgical problem in homosexual patients infected with HIV virus. Many of these problems may be related to or exacerbated by sexual practices.

Anorectal infection with the human Papilloma virus (HPV) can lead to the development of anal condylomata acuminata and squamous cell carcinoma of the anus. When condylomata are small and few in number, they can be treated successfully with repeated applications of podophyllin or with electrofulgration[19]. Patients with extensive anal condylomata are at significant risk for development of squamous cell carcinoma of the anus.[20]. Early carcinomas may respond well to local excision[21] but advanced lesions are difficult to manage.

Primary rectal lymphomas have been identified in AIDS patients[22]. This lesion may present as a mass or with necrosis. The tumor necrosis may simulate an anorectal abscess. Whenever an atypical lesion is encountered in anorectal lymphomas, further evaluation usually reveals evidence of a disseminated lymphoma.

Anal ulcers can result in severe pain and are frequently refractory to therapy. Herpes simplex virus and CMV are common causes of these lesions. KS may appear in the rectum as a mass or with ulceration. Diagnosis is confirmed by biopsy [23,24].

LYMPH NODE BIOPSY

Open surgical lymph node biopsy in the AIDS patients has now been largely replaced by fine needle aspiration biopsy (FNAB). This provides adequate tissue for diagnosis in over 95% of cases[25]. Surgical lymph node biopsy may be required for evaluation of suspicious or enlarging lymph nodes in the setting of a negative FNA or in those rare cases when a larger tissue specimen is required to further classify a lymphoma.

ITP & AIDS: The surgeon may also be called to evaluate chronic problems in patients with AIDS. Thrombocytopenic purpura can develop in approximately 7% of patients with HIV infection[26]. The cause of this condition is unknown but may be directly related to HIV virus. The clinical presentation bears a striking similarity to ITP. Treatment, however, includes therapy with antiretroviral agents such as zidovudine (AZT). Splenectomy is indicated in non-

responders and 75% may show some degree of improvement following surgery.

COMPLICATIONS

The rate of postoperative complications correlates with the general state of health of the patient. Patients with minimal manifestation of immune suppression do not exhibit problems with wound healing and infection. However, would healing problems are significant after surgical treatment of anorectal lesions[27].

In severely affected patients, a major surgical procedure may exacerbate co-existing infections, and mortality rates of 50-90 percent have been described in these patients.

CONCLUSION

The AIDS epidemic is progressing and is associated with opportunistic infections and unusual malignancies. Many of its manifestations may mimic acute or chronic surgical conditions, so surgeons will be frequently called to diagnose potential surgical problems and to assist in the management of severe complications of the disease. In a significant number of cases, the decision “not to operate” might be very vital where in others the surgical intervention may improve the quality of life and prolong survival. Hence, an awareness and understanding of the disease processes distinctive to AIDS patients is essential for surgeons so that appropriate care can be planned for their patients and that they protect themselves and their fellow health care team members at the same time.

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