

Emergency and Urgent Surgery

Consistent with operative standards of care, emergency and urgent surgeries should not be delayed in patients with HIV for preoperative evaluation and risk stratification, including CD4 count and HIV viral load testing. CD4 count testing can often take many days to complete.

Elective Surgery: Determine HIV Clinical Status

PAI standard preoperative assessments should be performed in patients with HIV, including cardiovascular and pulmonary evaluations such as the Revised Cardiac Risk Index (RCRI) and the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) Surgical Risk Calculator scores.

Individuals with HIV tend to have earlier and more comorbidities than those without HIV, including coronary artery disease, thromboembolic events, and pulmonary complications

As with all patients, a detailed assessment of social support, housing, and food security is required to determine the level of assistance needed for optimal postoperative recovery.

- ❖ In patients with HIV, clinicians should review the most recent CD4 cell count and HIV viral load test results as part of the preoperative evaluation
- ❖ If recent test results (6 months for HIV viral load; 12 months for CD4 count) are available in the patient's medical records, retesting before surgery is unnecessary.

- ❖ For most individuals taking ART, current guidelines recommend CD4 count testing every 12 months if a patient's CD4 count is <350 cells/mm³ and HIV viral load testing at least every 6 months
- ❖ In those with viral suppression and a CD4 count >350 cells/mm³, CD4 count monitoring is optional.

- ❖ If records indicate that a patient has undetectable HIV RNA but has not had recent CD4 count testing, a CD4 count can be ordered, though it is not necessary and should not delay surgery.
- ❖ If no records are available, preoperative CD4 count and HIV viral load tests should be ordered

Risk factors for surgical complications:

- ❖ In general, in patients with HIV, the combination of a low CD4 count and an uncontrolled viral load is associated with an increased risk for postoperative mortality and complications
- ❖ If surgery is elective and the patient has a viral load level ≥ 200 copies/mL or CD4 count ≤ 200 cells/mm³, clinicians should consult with the patient's primary care provider or an experienced HIV care provider

Other laboratory test results to consider for patients with HIV include

- ❖ complete blood count (CBC)
- ❖ basic metabolic panel (BMP),
- ❖ liver function tests (LFTs)
- ❖ and prothrombin time (PT)/partial thromboplastin time (PTT).

Patient population

HIV/AIDS patients are not a homogeneous group. For clinical purposes it is imperative to stratify them into two groups :

- ❖ Patients with HIV infection only (A1, B1, A2, B2) have a lower operative risk and are less contagious
- ❖ Patients with AIDS (C1, C2, C3, A3, B3) are more prone to operative complications and are more contagious

Pathology

❖ Pathology occurring in HIV/AIDS patients can be classified into two groups:

diseases with a definitive association with HIV and coincidental diseases

- ❖ As for the first group, new and unheard diseases have come to the forefront. Thirty years ago diseases such as disintegrating perineum syndrome and diffuse infiltrative lymphocytosis syndrome (DILS), to name but a few, were unheard of. Strategies to diagnose and treat these conditions had to be devised.
- ❖ The second group of patients are those with HIV/AIDS who develop the 'normal' type of pathologies as are seen in the general population.

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SURGICAL TREATMENT

When planning surgical treatment for HIV/AIDS patients, the physician should take the following issues into account:

- informed consent
- operative risk in HIV/AIDS patients
- occupational risk to the health care workers
- universal and specific precautions
- variations in operative technique
- ethics

Informed consent

When a doctor proposes a surgical intervention, informed consent is an absolute necessity. Three new aspects have arisen during the course of the HIV pandemic

Firstly, HIV/AIDS patients fear social recognition and rejection and frequently request doctors to perform unnecessary surgery such as removal of 'tell-tale' cervical lymph nodes or parotidectomy for DILS.

- ❖ The second aspect of informed consent pertains to the management of terminal HIV/AIDS patients. Some patients (and their families) refuse surgery in desperate situations (such as bowel perforation) as they want an end to the suffering
- ❖ Thirdly, it should be emphasised to AIDS patients that they are more prone to perioperative complications.

Operative risk in HIV/AIDS patients

- ❖ The risk of surgery for an HIV-positive patient is determined in much the same way as that for an HIV-negative patient.
- ❖ The preoperative physiological status, i.e. a functionality score, is the most accurate predictor of postoperative outcome
- ❖ As always, when calculating the risk for operative morbidity and mortality, the surgeon considers two aspects:
- ❖ the pathophysiological state of the patient versus the magnitude of the procedure.

- ❖ Patients with early HIV infection have an operative risk almost equal to HIV-negative patients and can therefore be subjected to any major surgery that is required
- ❖ The pathophysiological consequences of advanced disease (e.g. immunosuppression, malnutrition, infections and neoplasms) could dictate that the magnitude of the surgery be scaled down to an acceptable and safe level.

Four factors have been found to increase operative morbidity and mortality in HIV/AIDS patients:

- a compromised physiological state – the best predictors of perioperative morbidity and mortality appear to be scores that measure general health such as ASA (American Society of Anesthesiology) risk classes
- physiologically demanding surgery
- emergency surgery as opposed to elective procedures
- operations in contaminated fields, e.g. anorectum or oral cavity

Studies of the value of viral loads and CD4 counts (alone or in combination) in predicting operative morbidity and mortality did not produce conclusive results. These tests are not ideal for everyday practical use.

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Occupational risk to the health care workers

The good news is that the initial perceived threat concerning occupational transmission of HIV was less than anticipated.

Although all exposure to contaminated bodily fluid carries a risk, the risk of HIV transmission increases particularly in the following circumstances:

- ❖ if the penetrating needle-stick injury occurred with a hollow as opposed to a solid needle,
- ❖ if the needle injury was a deep soft-tissue penetration, if there was visible blood on the needle,
- ❖ if the patient is in the early viraemia stage or the patient has advanced AIDS (both have high viral loads) and in case of prolonged exposure (blood inside a glove).

- ❖ If possible, postponing elective operations with the aim of starting the patient on antiretroviral medication should be encouraged:
- ❖ Operating on a healthier patient with a lower viral load and higher CD4 count is advantageous for both patient and surgeon.

Table I. Centers for Disease Control – 1993 revised classification system for HIV infection

	A. Asymptomatic, primary infection or PGL	B. Symptomatic (not A or C) conditions	C. AIDS, i.e. indicator conditions present
1. ≥ 500 CD4 cells/ μ l	A1	B1	C1
2. 200 - 499 CD4 cells/ μ l	A2	B2	C2
3. <200 CD4 cells/ μ l	A3	B3	C3

Source: Centers for Disease Control. *Morbidity and Mortality Weekly Report*. 18 December 1992.

The occupational hazard is not only to the surgeon's life but also to the lives of his/her spouse or intimate friends.

- ❖ In case of exposure, the post-exposure prophylaxis (PEP) should be taken as early as possible
- ❖ It is wise for doctors to have a personal PEP kit readily available.
- ❖ The relative cumulative seroconversion risk for surgeons in tropical Africa is estimated to be 15 times higher than in Western countries

Universal and specific precautions

- ❖ All bodily fluids of all patients should be regarded as hazardous substances
- ❖ Barrier protection is the key word
- ❖ Protective eyewear, gloves and water-impermeable gowns are essential
- ❖ The use of high-quality latex gloves should be mandatory and these gloves should be available in all situations where there is a danger of health care workers being exposed to hazardous bodily fluids

- ❖ Wearing two pairs of gloves reduces the risk of exposure, as 98% of blood from the penetrating needle will be removed and it will also compensate for defects in the fabric of the gloves
- ❖ The outer glove should be half a size bigger than the inner glove

- ❖ The ill-fated practice of 'looking' for the suturing needle with the index finger of the left hand is very irresponsible
- ❖ Special gloves with thickened latex over the index finger of the left hand have been introduced
- ❖ Suture material with blunt needles did not gain popularity

- ❖ Disposable equipment should be used whenever available
- ❖ All patients should be encouraged to undergo HIV testing

Patients' refusal of an HIV test emanates from three fears

- ❖ the fear of knowing that he/she has contracted a serious disease
- ❖ fear of social rejection
- ❖ the fear of substandard treatment

Variations in operative technique

Simple techniques to reduce occupational hazards include:

- ❖ cutting with electrocautery
- ❖ avoidance of hand-to-hand passage of sharps
- ❖ hands should never be used as tissue retractors.

Contemporary to the HIV pandemic, and partially due to it, less invasive and non-operative management of surgical conditions has literally exploded

Laparoscopic surgery has obvious advantages for both patients (less invasive, fewer wound complications) and health care workers (less time consuming, less exposure)

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- ❖ Natural orifice trans-endoscopic surgery (NOTES) is on the horizon.
- ❖ This technique allows for major abdominal surgery (e.g. cholecystectomy) to be done through an endoscope placed in the stomach.
- ❖ Intraoperative stapling significantly reduces the risk of needle-stick injuries.
- ❖ Endovascular interventions have revolutionised the management of HIV-associated vascular disease.

Less invasive management of most surgical diseases :

- ❖ an ever-expanding spectrum, e.g. banding of haemorrhoids and varices,
- ❖ percutaneous drainage of abscesses
- ❖ percutaneous ablations of tumours.

Ethics

- ❖ If a doctor proposes an operation, the risks to the patient must be weighed against the potential benefits of surgery.
- ❖ However, the HIV pandemic has added an additional variable: the risk to the surgical team
- ❖ Most doctors believe that it is an inalienable right of a doctor to select his patient population

- ❖ There are arguments against operating on HIV/AIDS patients, such as the (erroneous) belief that AIDS is a non-surgical as well as a fatal disease and should be managed as Such
- ❖ the occupational hazard is not only to the surgeon's life but also to the lives of his/her spouse or intimate friends

- ❖ The opposite point of view is that almost all occupations carry some element of personal risk and danger
- ❖ If the situation demands it, the surgeon should take calculated risks in order to improve the well-being of other people.

HIV/AIDS patients presenting with surgical disease may be divided into two clinical categories:

- ❖ life-threatening surgical correctable Disease
- ❖ surgical interventions intended for diagnosis, prophylaxis, or palliation

The consensus opinion

- ❖ in the first instance surgical intervention is obligatory
- ❖ In the second instance, alternatives to surgery can be contemplated

IN A NUTSHELL

- In dealing with HIV/AIDS patients, the physician should not regard them as a homogeneous group.
- Pathology occurring in HIV/AIDS patients can be classified into two groups: diseases with a definitive association with HIV and co-incidental diseases.
- Patients with early HIV infection have a perioperative risk almost equal to HIV-negative patients.
- The best predictors of perioperative morbidity and mortality are scores that measure general health such as ASA (American Society of Anesthesiology) risk classes.
- The good news is that yesteryear's dreaded threat concerning occupational transmission of HIV fortunately came to pass without much impact.
- Postponing elective operations with the aim of starting the patient on antiretroviral medication should be encouraged.
- All bodily fluids of all patients should be regarded as hazardous substances.
- Simple techniques to reduce the occupational hazards should be encouraged and practised.
- The consensus opinion is that in patients with life-threatening surgical correctable disease surgical intervention is obligatory.

