

GYNAECOLOGICAL SURGERY IN THE HIV-POSITIVE PATIENT

Women bear the brunt of HIV disease.

LOUISE SMITH, BSc, MB ChB, MMed(O&G)

Senior Specialist, Pelonomi Hospital, University of the Free State

Louise Smith qualified 5 years ago and has been working in the Department of Obstetrics and Gynaecology, Pelonomi Hospital and University of the Free State. She is the acting head of department at Pelonomi Hospital. Her particular interest pertains to high-risk obstetrics and HIV-infected women.

Correspondence to: Louise Smith (Louisesmith@polka.uovs.ac.za)

In 2003, UNAIDS estimated that 17 million women worldwide were living with HIV/AIDS. It is estimated that every day in sub-Saharan Africa approximately 5 500 women are newly infected with HIV and more than 3 000 die from AIDS-related illnesses. In this region, where women comprise 58% of the existing HIV-positive patients, infection is increasing faster among women than men. The clinician caring for the HIV-infected woman must be alert to the gynaecological issues that are prevalent in this population. The HIV-seropositive patient has a high risk of developing conditions that require emergency laparotomies, e.g. tubo-ovarian abscesses and postpartum endometritis. With the advent of triple antiretroviral therapy, women living with HIV can now enjoy longer life spans in relatively good health. Thus, seropositive women are now facing issues around longevity such as perimenopausal bleeding abnormalities, gynaecological surgery for benign conditions of the female genital tract (i.e. uterine fibroids) and gynaecological cancers.

There is a paucity of literature about the rate of complications after gynaecological surgery in HIV-infected women, but this can be extrapolated from the obstetric section and other surgical data. The European HIV-in-Obstetrics group reported a post-caesarean section (elective and non-elective) complication rate of 42.7%, mostly from febrile morbidity and anaemia requiring transfusion.¹

Before antiretroviral therapy, series with HIV-infected patients undergoing operative procedures provided conflicting results. HIV-seropositive patients had more complications, including more perioperative infections, impaired wound healing, and greater mortality and these results were used as justification to withhold surgery in certain circumstances.² Other studies disputed these findings, including in patients undergoing laparoscopic and anorectal surgery. Conflicting research has addressed morbidity and mortality in HIV-infected patients undergoing operative procedures since the advent of antiretroviral therapy. There are indications that use of antiretroviral therapy has resulted in better surgical outcomes. Improved complication rates were seen in women undergoing caesarean sections, gynaecological surgical procedures, laser surgery to treat anal condyloma and cardiac valve replacement.² A study done by Horberg *et al.*² compared operative morbidity and mortality between seropositive and seronegative patients undergoing a variety of surgical procedures. Matched pairs (352 patients in each group) were comparable in demographics, operative procedure type and surgical risk at the time of their operations, aside from any risk attributable to HIV or AIDS. Most (80.8%) were abdominal or pelvic procedures; 8.4% were cardiac or breast procedures, with the remainder being orthopaedic procedures. No difference was found in the urgency of need for surgery, and more than half were elective procedures. No statistically significant difference was found for delayed wound healing, surgical site infections, wound dehiscence, number of complications, length of hospital stay, number of follow-up visits to the surgeon, or need for further operative procedures to treat surgical complications among HIV-infected v. HIV-noninfected patients (11.1% v. 1.2%; $p=0.79$). The only difference found was that seropositive patients had a higher risk of developing postoperative pneumonia (2.4% v. 0.3%;

$p=0.02$). The HIV-infected patients had greater cumulative mortality at 12 months (odds ratio (OR) 5.0). The absolute risk difference for death at 12 months was 2.4%. The causes of death varied and none appeared to be a direct consequence of the operation.

There are indications that use of antiretroviral therapy has resulted in better surgical outcomes.

In HIV-infected patients a CD4 count less than 50 cells/ μ l was associated with a statistically higher complication rate than when the CD4 count was greater than 50 cells/ml (36.4% v. 10%; $p=0.006$). If you use a CD4 cut-off point of 200 cells/ μ l, a lesser count was not associated with a higher complication rate than a count above 200 cells/ μ l (13.3% v. 10.3%; $p=0.5$). Viral loads greater than 10 000 cells/ μ l were associated with a higher complication rate (20.7% v. 8.6%; $p=0.008$). Most of the increase in complications was observed in patients with preoperative viral loads greater than 30 000 copies per ml (adjusted OR 2.95; $p=0.007$). Patients with a history of antiretroviral use within 180 days before surgery had similar complication rates (11.9% v. 13.8%; $p=0.69$) as patients without a history of antiretroviral use. While the HIV-infected patients had a higher prevalence of bacterial infection at surgery, this did not predict a higher postoperative infection rate, nor a higher surgical site infection rate.² In another study it was found that HIV infection per se does not increase postoperative morbidity, but patients with CD4 counts less than 200 cells/ μ l and patients undergoing emergency operations probably have a higher rate of complications, which might be related to the higher number of emergency cases operated for sepsis. This study was performed before the widespread use of antiretroviral therapy.

A study done by the University of KwaZulu-Natal found that HIV does not influence the outcome of general surgical admissions and should not influence surgical management decisions. It was a heterogeneous group of 350 patients consisting of trauma and non-trauma patients, elective surgery interventions and drainage of sepsis. The hospital stay (mean 11 days) and mortality (mean 3.6%) did not differ between seropositive and seronegative patients. An operation for the drainage of septic focus was more common in the HIV-positive patients. Of the patients, 24% had CD4 counts less than 200 cells/ μ l (i.e. AIDS). The hospital mortality, hospital stay and severity of sepsis were not related to CD4 counts.⁴

Although data pertaining to gynaecological surgery in the seropositive patients remain limited, extrapolations from obstetric surgery (caesarean section) and general surgery in the seropositive patients can easily be drawn for gynaecological surgery. Results of anorectal infective surgery can be compared with vaginal/pelvic infective surgery. Laparotomies should have the same morbidity, independent of the indication, whether for gynaecological or general surgery indications. The same extrapolations can safely be drawn between vaginal, vulval and anal cancer surgery.

Women with HIV may be at risk for an increase in gynaecological surgery for a number of reasons. One longitudinal cohort study reported that women living with HIV are more likely than seronegative controls to have a hysterectomy and that this was most often done for cervical neoplasia.⁵ Other studies demonstrated a trend toward more tubo-ovarian abscesses, which often require surgical intervention in HIV-infected women with pelvic inflammatory disease.^{5,6}

Women with HIV may be at risk for an increase in gynaecological surgery for a number of reasons.

Pelvic infectious disease requiring surgical intervention

Early reports of pelvic inflammatory disease in HIV-infected women suggest that presentation may be atypical in this population, with an increased need for surgical interventions and an increased mortality rate.¹ In 1993, pelvic inflammatory disease, 'especially with a tubo-ovarian abscess', was even included in the list of Category B symptoms. More recent data suggest fewer differences in pelvic inflammatory disease between seropositive women and the general population, with HIV-positive women more likely to have tubo-ovarian abscesses, but responding well to outpatient treatment.¹ Studies have demonstrated more prolonged hospitalisation among seropositive women with acute salpingitis. Current recommendations for the treatment of upper genital tract infections are the same as in the general population.¹

Data pertaining to surgery in seropositive patients with pelvic infections remain limited. Irwin *et al.* found HIV-infected women had more sonographically diagnosed adnexal masses on admission (45.8% v. 27.1%, $p=0.08$) than their HIV-negative controls.⁶ Mycoplasma (50% v. 22%, $p<0.05$) and streptococcus species (34% v. 17%, $p<0.05$) were isolated more commonly from biopsies of HIV-infected women. Within 30 days after enrollment, HIV-infected women generally responded as well to antibiotic therapy as HIV-noninfected women, regardless of initial CD4 T-lymphocyte percentage.⁶

Another study found that HIV-seropositive cases were more likely than controls to have a temperature of at least 38°C (OR=2.5), a genital ulcer (OR=7.8), and a tubo-ovarian mass on ultrasonography (OR=2.6) and to need surgery (OR=6.5) and hospitalisation (OR=3.5). However, no comments were made on differences in surgical outcomes between the two groups.

If we look at comparative data from general surgery with septic foci (e.g. appendicitis) being the indication for surgery in the HIV-positive patient, they did not have a worse outcome than the control group. Patients with septicaemia, in general, present as emergency cases requiring emergency surgery. Surgery performed under emergency conditions has more postoperative morbidity and mortality than elective cases; this is independent of HIV status.³ Therefore indications for surgery in HIV-positive women with tubo-ovarian abscesses should not differ from the general management of patients with pelvic septic foci.

Hysterectomy for benign uterine conditions

A study published in 2005 investigated the outcomes of hysterectomy in HIV-seropositive women compared with seronegative women.⁷ Both groups were matched by age, primary indication for surgery (infectious v. non-infectious), major medical complication (such as poorly controlled diabetes, hypertension), past surgical history (major abdominal surgery, not including caesarean section), and type of procedure performed. In addition, the groups were matched by uterine weight and operating time. The complication rate was defined as postoperative febrile morbidity, wound infection, postoperative urinary tract infection, re-admission to the hospital, re-operation, intraoperative or postoperative transfusion or paralytic ileus.

Results

Most surgery was done for non-infectious indications, with the most common indication for surgery being uterine leiomyomas. Cervical dysplasia as an indication for hysterectomy was more common in HIV-positive women. Overall, the complication rate among all groups was similar. Similar results were found in other studies.⁷

The association of HIV infection with rapid progression of cervical and anal squamous cell carcinoma has clearly been established by several studies.

Surgical treatment of patients with CIN lesions/cervical cancer

Treatment of cervical intraepithelial neoplasia (CIN) is difficult because of the higher likelihood of recurrence after excisional or ablative therapy. Second or third therapeutic procedures to manage CIN 2 or 3 are often

required. Hysterectomy is not advocated, as there is a 50% recurrence rate at the vaginal cuff. In 1993, the CDC included invasive cancer of the cervix as an AIDS-defining illness. The association of HIV infection with rapid progression of cervical and anal squamous cell carcinoma has clearly been established by several studies. Patients with invasive cervical cancer should be treated in the same way as HIV-negative patients. If the CD4 count is <200 cells/ μ l, patients should be treated with antiretroviral therapy. The prognosis appears to be worse than in non-infected women.

Patients with VIN, VAIN and AIN lesions or cancer

Vulvar, vaginal and anal intraepithelial neoplasia (VIN, VAIN and AIN) appear to be prevalent among HIV-infected women. Treatment of these intraepithelial neoplasias is difficult because of the higher likelihood of recurrence after excisional or ablative therapy.

HIV-infected patients are at an increased risk of developing vulval cancer.

No association between HIV infection and vaginal carcinoma has been reported. Owing to the rarity of primary vaginal carcinoma, the clinical behaviour of this neoplasm in the HIV-infected patient is poorly understood. A case study from Lee *et al.*⁹ indicates that, although vaginal carcinoma is a disease of the elderly, young women infected with HIV and HPV are not only predisposed to develop cervical or anal carcinoma, but may also be at increased risk for vaginal carcinoma with more aggressive and less responsive disease. This case also illustrates the aggressive behaviour of such a tumour when associated with HIV infection. Limited data on surgical treatment of vaginal cancer in the HIV-positive patient are available. Patients with CD4 counts <200 cell/ μ l should be treated with antiretroviral therapy and the rest of the standard treatment protocol for invasive vaginal cancer should not be different from those for HIV-negative patients.

HIV-infected patients are at an increased risk of developing vulval cancer. The dilemma is that most of the patients present in locally advanced stage of disease with massive tumour bulk, poor nutritional status and very low CD4 counts (usually <200 cells/ μ l). At this stage, surgery is not possible and therefore the data remain limited. Excision biopsies of VIN and AIN lesions are well tolerated in the HIV-infected patient. Dua *et al.*³ found that anorectal procedures were safe

in these patients, with a low complication rate (5%). The complications were almost entirely related to delayed wound healing in patients with low (<200 cells/ μ l) CD4 counts. Lessons from the anal cancer literature may help inform the care of vulva cancer patients given the comparable high prevalence of this disease in the patients infected with HIV.¹⁰

Conclusion

HIV status does not influence the outcome of gynaecological surgery in general and should not influence surgical management decisions.

References available at www.cmej.org.za

IN A NUTSHELL

- UNAIDS estimated that 17 million women worldwide were living with HIV/AIDS.
- Conflicting results were obtained from research into morbidity and mortality in HIV-infected patients undergoing operative procedures.
- No significant difference was found for surgical complications among HIV-infected v. HIV-non-infected patients, except in patients with preoperative viral loads greater than 30 000 copies per millilitre and in emergency procedures.
- Seropositive patients have a higher risk of developing postoperative pneumonia and have a greater cumulative mortality at 12 months.
- HIV-infected women with pelvic inflammatory disease display a trend toward more tubo-ovarian abscesses, which often require surgical intervention.
- Indications for surgery in HIV-positive women with tubo-ovarian abscesses should not differ from the general management of patients with pelvic septic foci.
- More hysterectomies are performed in seropositive women due to a high rate of cervical dysplasia.
- Hysterectomies are done mostly for non-infectious indications, most common indication for surgery being uterine leiomyomas. The postoperative complication rate is similar to seronegative patients.
- Patients with invasive cervical cancer should be treated in the same way as HIV-negative patients. If the CD4 count is <200, patients should be treated with HAART.
- Limited data on surgical treatment of vaginal and vulva cancer in the HIV-positive patient are available. Lessons can be learnt from anal cancer surgery, given the comparable high prevalence of this disease in patients infected with HIV.