

Cellular Pathology in Uganda

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Background

- For demographic reasons Sub-Saharan Africa is experiencing a rapid increase in the numbers of cancers;
- Average life expectancy at birth has improved from 40yrs in 1950 to 53yrs with most premature mortality in infancy and childhood. Deaths from complications of HIV and malaria are reducing and cancer is now a major cause of mortality in middle aged and elderly adults.
- As the population ages cancer will become an increasing problem. At present in Uganda there are approximately 1.4 million females between the ages of 45 and 65, this number will likely increase to 2.3 million in 2028 and 4 million by 2038.
- Facilities and skills to provide effective treatments with the current incidence of cancer are not available. Cellular pathology services, essential for accurate diagnosis, guiding treatment and quality control is inadequate.
- Ugandans have access to a full range of news media; the New Vision and other newspapers frequently cover medical stories and including both developments in treatment and the experience of individuals. Social media, mainly Facebook, is of increasing influence.
- While currently most Ugandans still do not consider health care a right, expectations are now increasing.

Pathology in Mbarara

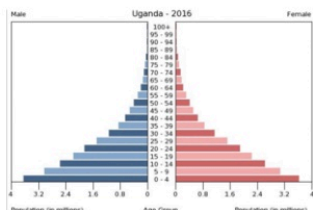
- The publicly funded Mbarara Regional Referral Hospital (RRF) serves a population of about 4 million, with 600 beds and 4 operating theatres it should produce a steady stream of surgical pathology and biopsies.
- Publicly funded pathology is provided by the adjacent university pathology department; while there are 4 biomedical scientists trained in histopathology there is limited equipment and a lack of consumables.
- The department's raison d'être is to teach medical students (annual intake of 80), trainees in laboratory sciences and medical trainees in pathology.
- Laboratory facilities are just adequate for conventional histology and cytology, staining is carried out manually as is IHC.
- The annual consumable budget for the department usually only lasts 3 months; there have also been problems with the quality of locally sourced reagents and solvents.
- The case load is limited: 1000 surgical specimens and 600 fine needle cytology specimens per year. The majority of the specimens are diagnostic biopsies; usually for advanced disease. No more than 3 mastectomy were seen in 10 weeks and other cancer resections are much rarer (the most frequent breast operation is a toilet mastectomy).

Pathology in Mbarara (cont)

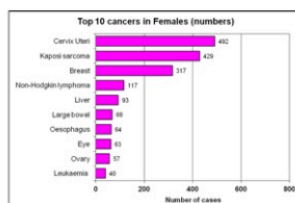
- A previous volunteer (Dr Omorhigo Aisagbonhi) introduced ER and PR testing on FNAs of breast cancer. This is a valued new service but it is not clear how the results are being integrated into patient care.
- It is surprising that a publicly funded cellular pathology lab serving 4 million receives only 1000 surgical specimens per annum.
- The laboratory has a poor reputation for turnaround time and has suffered long periods without senior staff.
- There appear to be incentives for doctors to persuade patients to take specimens to private labs; as the average cost of a small private histopathology examination is 70 USD it is likely this often cannot be afforded and the specimen discarded.
- Private laboratories in Uganda do not contribute to training.
- Mbarara department has run on a single Cuban pathologist for many years, following this from 2016 volunteers from the USA and UK supported the department.



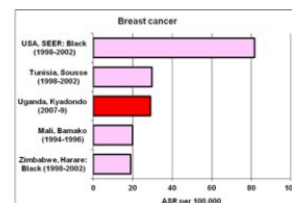
Uganda, similar in area to the UK, on the equator but above 1200m giving a pleasant almost temperate climate



Population pyramid in Uganda (source: World Bank), This illustrates the expected increase in the numbers of individuals susceptible to cancers.



Kampala cancer registry data (the only cancer registry in Uganda)



Age standardised rate of breast cancer in the Kampala (Kyadondo) district compared with USA data. This suggests many cancers go unreported and untreated. (Kampala Cancer Registry)

Pathology training in Uganda

- Trainees (residents) in Histopathology in Uganda undergo a 3 year Master of Medicine (M.Med. Pathol) course in Kampala or Mbarara. There are currently 8 trainees in Kampala and 4 in Mbarara.
- The M.Med is a postgraduate university course; there is no salary. If trainees do not have a bursary or other source of income they may support themselves by working in another department or organisation.
- The Mbarara program is a 10 semester program with much time dedicated to academic learning (e.g. in epidemiology + public health); and further time is spent on a dissertation or project that must be completed to obtain the degree. There is specified time for practical work, about 30% of time is spent on autopsies and the course specifies 1000 surgical cases and 200 cytology cases to be reported under supervision over 3 years. This compares with about 5000 cases over 4 to 5 years for a trainee in the UK or USA.
- In Mbarara the case distribution, mainly small biopsies, with limited numbers of resections, is not optimal for training
- Mbarara RRF has a single oncologist in post. For many tumour sites there is no functional multidisciplinary meeting at which patients can be assessed and referred between medical, surgical and palliative care. There are thus few opportunities to learn about the role of cellular pathology in patient management.

Pathology training in Uganda (cont)

- Even if there was sufficient case load there is a shortage of experienced pathologists who have the expertise and time to supervise and teach
- There are only 30 pathologists on the Ugandan medical register: many are outside the country, work exclusively in the private sector or work in other pathology subspecialties.

Future developments

- Due to the combination of demographics and finance it will not be possible to offer Ugandans with cancer the comfort of a developed health care system any time soon.
- The Ugandan government recognises the issues and is actively supporting cancer care, funding the Uganda Cancer Institute and supporting training in some specialities.
- Nationally more could be done to support diagnostic specialities particularly radiology and pathology.
- Locally in Mbarara it is essential to increase the numbers of surgical specimens to facilitate training and to improve patient care.
- The laboratory will have to improve TAT and ensure there are staff available to report.

Can UK Pathology help?

- Any aid must aim to reduce dependency. Supporting the training of Ugandans in cellular pathology fulfils this condition.
- Two essentials are required to improve pathology training in Mbarara.
 - 1) Increase in the accessions of surgical pathology and cytology to give trainees more experience.
 - 2) to arrange for a consistent presence of experienced senior pathologist(s) to improve the TAT and training.
- Donors have previously been generous with equipment; however the pressing need is for a consistent sustainable supply of consumables
- Maintaining senior staff presence, improving training of and contribution to the development of existing qualified pathologists can be supported by experienced staff from developed countries spending time in these departments.

Acknowledgements

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