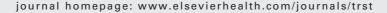# Gastrointestinal pathology in the University Teaching Hospital, Lusaka, Zambia: review of endoscopic and pathology records

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Summary   There is a shortage of information on the epidemiology of digestive disease in developing countries. In the belief that such information will inform public health priorities and epidemiological comparisons between different geographical regions, we analysed 2132 diagnostic upper gastrointestinal endoscopy records from 1999 to 2005 in the University Teaching Hospital, Lusaka, Zambia. In order to clarify unexpected impressions about the age distribution of cancers, a retrospective analysis of pathology records was also undertaken. No abnormality was found in 31% of procedures, and in 42% of procedures in children. In patients with gastrointestinal haemorrhage, the common findings were oesophageal varices (26%), duodenal ulcer (17%) and gastric ulcer (12%). Gastrointestinal malignancy was found in 8.8% of all diagnostic procedures, in descending order of frequency: gastric adenocarcinoma, oesophageal squamous carcinoma, Kaposi's sarcoma, oesophageal adenocarcinoma. Data from endoscopy records and pathology records strongly suggest that the incidence in adults under the age of 45 years is higher than in the USA or UK, and pathology records suggest that this effect is particularly marked for colorectal carcinoma.
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1. Introduction

Symptoms of digestive disorders are among the most common causes of consultation to health workers worldwide, but from sub-Saharan Africa there are few data on morbidity and mortality relating to digestive disease. Such data would be important not only to inform health-care planning, but also

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to answer specific questions, such as the following, about the epidemiology of digestive diseases in Africa: What is currently the commonest cause of gastrointestinal bleeding? Is there really an 'African enigma' relating to peptic ulceration? Is functional dyspepsia, commonly diagnosed when endoscopy findings are normal, less common in Africa than in industrialised countries? Does the pattern of gastrointestinal cancer differ markedly from that in industrialised countries? Furthermore, there are to our knowledge no data available on upper gastrointestinal disease in children in Africa.

Gastrointestinal bleeding in any population is usually due to peptic ulceration, gastrointestinal malignancy, or to oesophageal varices. Mallory-Weiss tears at the gastro-oesophageal junction also frequently cause bleeding, but it is unusual for this sort of bleeding to be life-threatening. Studies from different parts of Africa give different results regarding the dominant cause of bleeding. In Kenya and Malawi, oesophageal varices were the commonest cause (Harries and Wirima, 1989; Lule et al., 1994), but in Zimbabwe and Cameroon, peptic ulceration was dominant (Ndjitoyap Ndam et al., 1990; Wicks et al., 1975). Development of effective guidelines for management of gastrointestinal haemorrhage should be informed by reliable, recent data on the dominant causes of bleeding.

The 'African enigma' is a theory that peptic ulceration is uncommon in Africa despite a high prevalence of *Helicobacter pylori* (around 80%) (Holcombe, 1992). The idea that peptic ulceration is uncommon in Africa was, however, carefully refuted by Cook as early as 1980 (Cook, 1980), before the aetiological role of *H. pylori* was identified. However, the theory continues to be discussed. In an earlier study, we showed that the prevalence of peptic ulceration in Lusaka is not low (Fernando et al., 2001), and a systematic review of studies from Africa confirms that peptic ulcer disease is as common in Africa (24.5%) as in industrialised countries (12—25%) (Agha and Graham, 2005). A recent text of gastroenterology in the tropics confirms that the prevalence of non-ulcer dyspepsia in the tropics is poorly documented (Holcombe, 1995). Likewise, there are few data on the incidence of gastrointestinal malignancies in Africa (Okobia, 2003), which would be needed to formulate management policies. If gastrointestinal malignancies are as uncommon in patients under the age of 40 years in Africa as they are in patients in industrialised countries, then symptomatic treatment of dyspepsia in patients under 40 years of age, as recommended by Holcombe (1995), is justified. If not, this policy needs revision and endoscopy needs to be offered irrespective of age.

In the belief that an analysis of endoscopic findings would begin to answer many of these questions, we carried out a retrospective audit of 2132 diagnostic upper gastrointestinal endoscopies performed in the University Teaching Hospital (UTH), Lusaka, Zambia. When it became apparent that the age distribution of digestive cancers followed an unexpected pattern, we also reviewed all gastrointestinal cancer diagnoses from pathology records.

2. Materials and methods

The endoscopy unit in the UTH was commissioned in 1987. The unit serves the hospital wards and outpatient clinics, with some referrals from other hospitals and private clinics in Zambia. Copies of all reports are kept in the unit. We conducted a retrospective review of all reports relating to upper gastrointestinal endoscopy over the period September 1999—September 2005. All records were entered onto a database in Epi6 (CDC, Atlanta, GA, USA and WHO, Switzerland, Geneva) by one of the authors (MK) and analysed after conversion into Stata 8 (Stata Corp., College Station, TX, USA). The distribution of pathologies was analysed by sex and by gastrointestinal bleeding; the results are presented as odds ratio (OR) with CI and P-values estimated from Fisher's exact test. In order to clarify unexpected findings regarding age and sex of patients with malignancies, a second retrospective audit was conducted of all histological analysis of suspected gastrointestinal cancers over the same 5-year period. Pathology records were reviewed and any record from oesophagus, stomach, small or large intestine or rectum that mentioned 'cancer' or 'malignancy' or 'invasive' was reviewed by a gastroenterologist (PK) and a pathologist (VM) together.

3. Results

All 2187 upper gastrointestinal endoscopy reports from the 6 years of the audit were reviewed; of these, 55 were therapeutic and 2132 were diagnostic. Therapeutic procedures included 40 variceal ligation and 15 oesophageal dilatation procedures for fixed strictures ($n = 9$) or for achalasia ($n = 6$); these are not included in the analysis. Activity increased gradually over time as endoscopes were replaced with Pentax FG-29W gastroscopes with a video camera, and the number of endoscopists increased from three to five (not including visiting endoscopists). Of the patients whose age and sex were recorded, 1100 were male and 941 were female, and their mean ages by sex were 41.5 (SD 18) and 39.7 (SD 19) years, respectively.

3.1. Indications

Major indications for endoscopy were epigastric pain (37%), non-localised abdominal pain (28%), gastrointestinal bleeding (11%), dysphagia (8%), dyspepsia (8%), vomiting (4%), heartburn (0.7%) or anaemia (0.5%). Indications for endoscopy did not differ by sex, except that as expected gastrointestinal haemorrhage was more likely among men (relative risk 1.45; 95% CI 1—2.1; $P = 0.05$).

3.2. Endoscopic diagnoses: upper gastrointestinal tract

No abnormality was found in 31% of all procedures. Not surprisingly, the proportion of normal endoscopies was lower in patients with dysphagia (13%), caustic ingestion (0%) or gastrointestinal haemorrhage (16%) than in patients with dyspepsia or abdominal pain (54%). Diseases usually attributable to *H. pylori*, i.e. gastric ulcer, duodenal ulcer and macroscopic 'gastritis', were common (Table 1). The high prevalence of oesophageal candidiasis (12.8%) reflects the severity of the HIV epidemic in Zambia.