Intestinal polyps in the Nigerian African

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SYNOPSIS Intestinal polyps appear to be relatively rare in the African including Nigerians, South African Bantus, and Ugandans. Only 40 histologically confirmed cases were encountered over a period of ten years. Analysis of these cases reveals a preponderance (60%) of the non-neoplastic juvenile type of polyp. Neoplastic polyps were not encountered in any female patient.

The mean ages of the patients are much lower than what has been observed in Caucasians inhabiting developed and industrialized countries. It is felt that there is probably a common or related aetiological agent for neoplastic intestinal polyps and carcinoma because the frequency of intestinal carcinoma appears to be relatively low in areas with a low frequency of neoplastic polyps.

There is very little information on the epidemiology and natural history of intestinal polyps in the African (Bremner and Ackerman, 1970; McQuaide and Stewart, 1972) including the Nigerian (Williams and Edington, 1967). This group of potentially precancerous lesions has been the subject of numerous reports in other population groups inhabiting different parts of the world (Hutt and Templeton, 1971; Morson, 1971). The relatively low incidence of intestinal lesions in the African has been observed by several workers, and this has been implicated in the relatively low incidence of intestinal malignancies, particularly carcinoma of the colon (Hutt and Templeton, 1971; Billinghurst and Welchman, 1966; Templeton, 1973). Geographical variations in the incidence of intestinal polyps and other precancerous lesions of the bowel, including ulcerative colitis, may therefore influence the incidence of intestinal malignancies (Burkitt, 1971). In this paper an analysis is provided of 40 histologically confirmed polyps of the intestine and rectum referred to the Department of Pathology, University College Hospital, Ibadan over a period of 10 years (1960-69). This study will not deal with the clinical aspects of polyps since their clinical manifestations are essentially similar to what has been reported from elsewhere.

Materials and Methods

Materials studied were obtained from 40 surgical biopsies. All the patients were Nigerians, who resided in the Southern States of Nigeria. All specimens were examined grossly, fixed in 10% formal saline, embedded in paraffin, and stained routinely with haematoxylin and eosin. When indicated, periodic-acid Schiff with diastase digestion and mucicarmine stains were utilized. The criteria used for the histological typing of the polyps are those used by the WHO group on Histological Classification of Tumours of the Intestine (to be published).

Results

SEX

There are 24 males and 15 females, and the sex of one patient is not known.

AGE

The age distribution of the patients is presented in table I according to sex. When analysed according to histological types, the average ages of the patients are summarized in table II. The average age of the two adult patients with villous papilloma is 47 years and the age of the only patient with adenomatous polyp is 7 years.

SITES

There are 31 (77%) polyps in the rectum, three (7.5%) in the colon, and one in the ano-rectal region, and the sites of five are not known. With the exception of one case, all the polyps were reported as solitary on clinical and radiological examination.
Table I  Age and sex distribution of Nigerian patients with polyps

Average age of patients in each age group is given in parentheses

<table>
<thead>
<tr>
<th>Age (yr)</th>
<th>Males</th>
<th>Females</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>10 (7)</td>
<td>4 (6)</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>11-20</td>
<td>5 (16)</td>
<td>5 (17)</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>21-30</td>
<td>2 (23)</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>31-40</td>
<td>1 (34)</td>
<td>2 (33)</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>41-50</td>
<td>2 (42)</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>51-60</td>
<td>3 (58)</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>61-70</td>
<td>1 (70)</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>14</td>
<td>1</td>
<td>40</td>
</tr>
</tbody>
</table>

Table II  Histological types of polyps and average age of Nigerian patients

Percentages are given in parentheses

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Average Age (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Juvenile</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>Villous</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Adenomatous</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Peutz Jeghers'</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Schistosomal</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Non-neoplastic-inflammatory group</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>14</td>
</tr>
</tbody>
</table>

Fig 1  Microscopic appearance of a juvenile hamartomatous polyp in a 41-year-old Nigerian male.

**Discussion**

The relatively low incidence of malignant neoplasms of the colon and rectum in the African has been partly attributed to the type of diet, volume of intestinal contents, stool weight, bacterial flora, faecal transit time (Aries, Crowther, Drasar, Hill, and Williams, 1969; Burkitt, 1971) and infrequent occurrence of premalignant intestinal lesions including neoplastic polyps and ulcerative colitis (Billinghurst and Welchman, 1966; Williams and Edington, 1967; Brennan and Ackerman, 1970; Hutt and Templeton, 1971). It is also noteworthy that familial or multiple polyposis of the colon is distinctly rare in the African (Williams and Edington, 1967; Templeton, 1973), and very few proven cases of familial polyposis (McQuaide and Stewart, 1972) or ulcerative colitis have been reported in the African (Billinghurst and Welchman, 1966).

Familial polyposis of the colon is not only rare in Africans but also appears to be relatively rare in other ethnologically related population groups, including West Indians (Morson and Dawson, 1972) and American Negroes (Cole and Holden, 1959; Cole, McKalen, and Powell, 1961; Gordon, 1969; Williams and Edington, 1967; Templeton, 1973).
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Rast, and Whelan, 1962; Dunning and Ibrahim, 1965). Neoplastic polyps, as a group of benign intestinal neoplasms, appear to be uncommon in other less sophisticated population groups, including South American Indians, Eskimos, Pygmies of Central Africa, Australian Aborigines, and Polynesians of the Pacific. The dietary composition and the quantity and quality of faeces in association with transit time in these different population groups, which are different from those in Caucasians living in the same environment, may be responsible for this relative rarity. Reviewing the literature, there is only one reported case of familial polyposis in a South African Bantu (McQuaide and Stewart, 1972); this condition also appears to be rare in Indians, Arabs, and Orientals when compared with Caucasians (Burkitt, 1971).

It is interesting that the average age of Caucasians with benign adenomatous polyps is about 60 years (Morson, 1971). In nearly all the developing countries where the incidence or frequency of polyps is low, the percentage of people living up to the seventh decade is relatively small. This may partly explain the low incidence of polyps in these population groups. However, it fails to explain the relative rarity of this lesion in population groups with a longer expectation of life. Non-adenomatous polyps also appear to be relatively uncommon in coloured races but there are few reports of Gardner's or Peutz-Jeghers' syndrome in American Negroes (Dunning and Ibrahim, 1965; Gordon et al, 1962; Achord and Proctor, 1963; Dodds, Schulte, Hensley, and Hogan, 1972; Kolade, Chung, White, and Leffall, 1973) who are ethnologically related to the West African.

The present study shows that the juvenile hamartomatous type of polyp is the commonest type in Nigerians, accounting for almost two-thirds of all our cases. The average ages of male and female patients are 14 and 11 years respectively, with a range between 3 and 41 years (table II). Most of the juvenile polyps are in the rectum and are solitary. We did not encounter any case of juvenile polyposis, and no congenital abnormalities were recorded in any of our cases with solitary polyps. Two male patients, aged 34 and 60 years, had villous papilloma of the rectum but the older patient had carcinomatous change in the papilloma. The only case of adenomatous polyp encountered was in a 7-year-old boy, a very rare lesion at this age. This was solitary and no other polyps or recurrences have been seen after four years of follow-up. We have also seen recently an infiltrating carcinoma of the sigmoid colon with a juvenile polyp in its vicinity (fig 2) in a 9-year-old Nigerian boy who died from metastasis about 10 months after surgical removal of the primary tumour. One case of Peutz-Jeghers' type of polyp in the rectum was encountered and one bilharzial polyp due to Schistosoma mansoni was also seen (fig 3). There were 10 cases which could not definitely be categorized into any of the histological types. Three of these were severely infected, two could be juvenile polyps, and one could be another Peutz-Jeghers' type of polyp. The remaining seven polyps, however, could be due to chronic non-specific inflammatory bowel disease which is not uncommon in the tropics. Bacteriological and parasitological examination of faeces from the seven patients did not reveal any specific pattern of organisms which could be incriminated.

The relative absence of polyps in women over the age of 40 is noteworthy (table I). This may be a real deficiency or due to the fact that the patients do not present for medical care. Lymphogranuloma venereum, as seen in the West Indies (Annamunthodo et al, 1974), is either underdiagnosed or not commonly encountered in Nigerians. Lymphoid hyperplasia of the terminal ileum is a relatively

Fig 2. Gross appearance of infiltrating carcinoma of colon in a 9-year-old Nigerian boy. Note the juvenile polyp (arrow) arising in the mucosa above the area of tumour.
common finding in our necropsy material, presumably related to intestinal helminthiasis. We have, however, encountered two patients at necropsy with diffuse lymphoid polyposis, one of whom had coexistent solitary malignant lymphoma in the terminal ileum. Apart from Burkitt's lymphoma, which frequently affects the intestine in African children, primary extranodal lymphoma of the intestine is relatively uncommon.

It would appear that the frequencies of the histological types of polyps seen in this series are a reflection of the age structure of the Nigerian population with excess in the younger age group. Furthermore, the presence of a protruding mass in the anus or blood in the stool of an African child usually so alarms the mother that she brings the child promptly for medical care.

In Kampala, a similar pattern has been observed over a five-year period. Templeton (1973) found 27 patients with colonic polyps, of which 16 (60%) were of the juvenile hamartomatous variety, and all the patients were under the age of 14 years. Other types encountered included one adenomatous polyp, two villous papillomas, and one metaplastic polyp. No adenomas were found in 2000 necropsies carried out in Uganda (Templeton, 1973), and this necropsy and surgical biopsy frequency pattern duplicates what has been observed in the South African Bantu (Bremner and Ackerman, 1970) and in the West African.

Analysis of available data in Africa and our current experience would point to the possible association that in parts of Africa with a low incidence of intestinal adenoma there is a concomitant low incidence of intestinal carcinoma. Evidence in support of the converse of this observation is forthcoming from a recent study which shows an interrelationship between colorectal adenoma and carcinoma (Ekelund and Pihl, 1974). Further studies are required primarily to find out the incidence of neoplastic polyp in relation to intestinal carcinoma in different geographical locations, and secondarily to evaluate, on an epidemiological basis, the relative importance of these precancerous lesions in the aetiology and pathogenesis of intestinal malignancies. The reasons for the relatively low frequency of neoplastic intestinal polyps in the African and inhabitants of other developing countries require further elucidation. It is conceivable that the genetic constitution and diet of the inhabitants, among other factors, may be of considerable aetiological significance. This requires immediate investigation before there is a radical change in the dietary and faecal composition (Aries et al, 1969) of these population groups.

References


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