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CONTENTS

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## ORIGINAL ARTICLES

- |   |   |     |
|---|---|-----|
| Condom use and the risk of HIV infection: who is being protected? .....   | M T Mbizvo, S Ray, M Bassett, W McFarland, R Machekano, D Katzenstein ..... | 294 |
| Plasma cholesterol distribution in a rural Nigerian population – relationship to age, sex and body mass .....             | R T Erasmus, C Uyot, T Pakeye .....   | 299 |
| Cross sectional sero-epidemiological prevalence of poliovirus antibodies post immunization with three doses of TOPV ..... | S A Tswana, C Berejena, SR Moyo, O Mudyarabikwa .....                       | 303 |
| Do traditional mosquito repellent plants work as mosquito larvicides? .....   | N Lukwa .....   | 306 |
| A preliminary investigation into psychological disorders in Mozambican refugees: prevalence and clinical features .....   | A P Reeler .....  | 309 |
| Acute poisoning in a paediatric intensive care unit in Harare .....   | I Chitsike .....  | 315 |
| Umbilical hernia in Bulawayo: some observations from a hospital based study .....   | G Mawera, GI Muguti .....   | 319 |

## CASE REPORTS

- |  |                            |     |
|--|----------------------------|-----|
| Traveller's loiasis in Zimbabwe: a case report ..... | LM Bordon, M Maurice ..... | 323 |
| Symptomatic polycystic liver disease: a case .....   | LM Bordon, L Chivete ..... | 327 |

## Umbilical hernia in Bulawayo: some observations from a hospital based study

G MAWERA, G I MUGUTI

### SUMMARY

We present a retrospective study of 40 consecutive patients admitted with umbilical herniae to Mpilo Central Hospital between January 1990 and December 1993. The majority of the patients 95 pc (38/40) were children and only 5 pc (2/40) were adults. The study included 18 males and 22 females giving a M:F ratio of 1:1.2. In children the age range was from 1 month to 13 years with 63 pc (24/38) occurring in the zero to five

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year age group. The commonest indication for admission was obstruction of the umbilical hernia in 37,5 pc (15/40) of cases. Other indications included: large umbilical hernia 30 pc (12/40), recurrent discomfort and peri-umbilical pain 20 pc (8/40), incidental finding in patients admitted for some other problem 7,5 pc (3/40), one case of recurrent hernia and one case of accidental injury.

Spontaneous reduction of obstructed umbilical herniae occurred in 86 pc (13/15) of cases and operative reduction was carried out in 14 pc (2/15) of cases. There was no mortality recorded in this series.

It is clear from our findings in this study that obstruction of the umbilical hernia in children in our practice although relatively uncommon, is a well recognised surgical emergency. On the basis of our findings we would recommend that prophylactic umbilical hernia repair should be performed in all girls over two years of age and in all children over four years of age.

### INTRODUCTION

Three forms of umbilical hernia are recognised in clinical practice.<sup>1</sup> The congenital variety occurs as a result of faulty union of the visceral plates in the midline. The infantile variety occurs soon after birth due to yielding of the umbilical cicatrix after separation of the cord and lastly, the adult variety occurs later in life.

Umbilical abdominal wall defects such as gastroschisis and omphalocele are thought to be developmental in origin, whereas an umbilical hernia results from severe stresses and strains against the fresh umbilical wound or weak cicatrix produced by coughing, crying, vomiting and possibly multiple pregnancies in women in later life.<sup>2</sup> As with other external abdominal wall herniae it is conceivable that other factors causing raised intra-abdominal pressure (e.g. chronic cough, constipation, ascites and distal obstructive uropathy) can predispose to umbilical hernia in later life. This study is concerned primarily with the infantile type and to a lesser extent the adult type of umbilical hernia.

Although umbilical hernia is a common clinical condition in Black African children there is very little data on this condition in the African medical literature. Indeed, no serious study on umbilical hernia has been carried out to date in Zimbabwe. It would appear from these observations that umbilical hernia is generally regarded as a harmless condition in our sub-region. It is

obvious from the findings in this study that umbilical herniae can cause problems in our community. The present study aims to highlight the problems caused by umbilical herniae in our practice and some suggestions on management are discussed.

### MATERIALS AND METHODS

Between January 1990 and December 1993, 38 children and two adults were admitted to Mpilo Central Hospital with a diagnosis of umbilical hernia. A retrospective analysis of their case records was carried out and the following information was extracted: age, sex, associated clinical conditions, operation performed, duration from first admission to umbilical hernia repair, duration of hospital stay and outcome.

### RESULTS

**Age and sex:** The study included 18 males and 22 females giving a M:F ratio of 1:1.2. Only two adult patients, both of them women, were admitted during the course of this study giving a child: adult ratio of 19:1. In children the age range was from one month to 13 years with 63 pc (24/38) occurring in the zero to five year age group, 26 pc (10/38) in the six to 10 year age group and 11 pc (4/38) in the 11 to 15 year age group.

**Associated clinical conditions:** The following associated clinical conditions were noted in 10 pc (4/40) of these patients: asthma, Beckwith's syndrome, cryptorchidism and a right inguinal hernia.

**Main indication for admission:** The commonest indication for admission was obstruction of the umbilical hernia which occurred in 37,5 pc (15/40) of cases. Spontaneous reduction of the obstructed umbilical hernia occurred in 86 pc (13/15) of these cases. This was achieved by admission, bed rest and adequate sedation. In most cases reduction occurred within two hours of admission. Of the 13 patients in whom spontaneous reduction occurred, definitive repair of the hernia was carried out in eight cases. The other five patients who were allowed to go home following a period of observation did not come back for surgery. In 14 pc (2/15) of cases reduction was only achieved at operation. Routine repair of the hernia was carried out and bowel resection was not necessary.

Further analysis of these cases revealed that obstruction occurred more in females, 60 pc (9/15), than males, 40 pc (6/15). One of the female patients was an adult aged 25 years. The average age of the eight girls

presenting with obstruction was 2,5 years (range one year seven months to four years six months). For the six boys presenting with obstruction the average age was seven years (range two years to 13 years).

**Other indications for admission:** Apart from obstruction several other indications for admission were observed. In 30 pc (12/40) of cases patients with large but otherwise asymptomatic umbilical herniae were admitted for elective surgery.

In these cases surgery was carried out for cosmetic reasons. Recurrent peri-umbilical pain and discomfort, not associated with obstruction, was observed in 20 pc (8/40) of cases. Definitive surgery was carried out in all these cases. In 7,5 pc (3/40) of cases umbilical hernia was an incidental finding in patients admitted for some other medical problem. None of these patients were subjected to surgery. The other indications for admission were: accidental injury to the umbilical hernia in another. Surgery was carried out in both these patients.

**Duration from first admission to umbilical hernia repair:** The time interval varied because after initial presentation with an umbilical hernia, some patients were discharged and booked for surgery at a later date. The average duration from first admission to umbilical hernia repair was 3,2 days (range one to 11 days) for 25 patients. The duration in three other patients was 20 days, 22 days and three and half months respectively.

Of note is that one patient in whom spontaneous reduction of an obstructed umbilical hernia had occurred on an earlier admission, was re-admitted with obstruction a week later while waiting for definitive surgery.

**Hospital stay and outcome:** The average hospital stay for all the patients was 5,3 days (range two to 14 days). This period was shorted (two to three days) for patients admitted for elective surgery. There were no major complications encountered and there was no mortality recorded during the course of this study.

### DISCUSSION:

In a study of umbilical hernia in Black African children in Tanzania, Mack found an incidence of 60 pc during the first year of life gradually decreasing to 7 pc by the 15th year.<sup>3</sup> In his study at Turk Mine (Zimbabwe) Evans observed that 5 pc of young adult men seeking employment had an umbilical hernia.<sup>4</sup> A similar observation was made in a Zambian study involving 2 638

Figure 1: Age distribution in children.

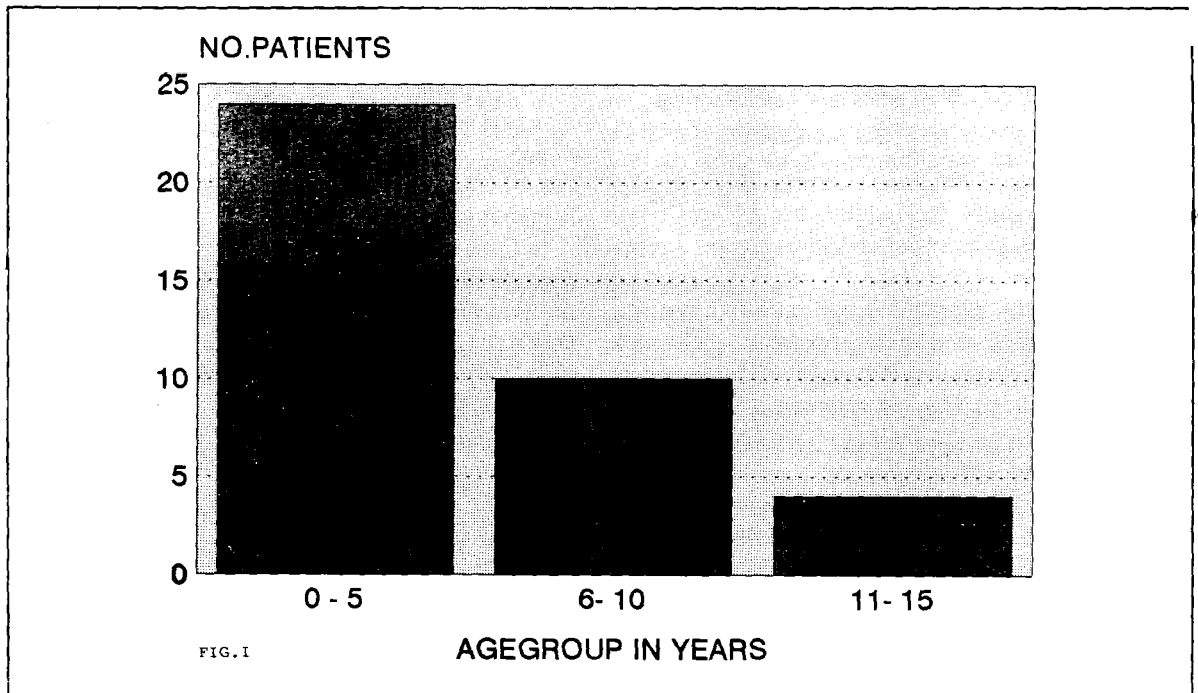
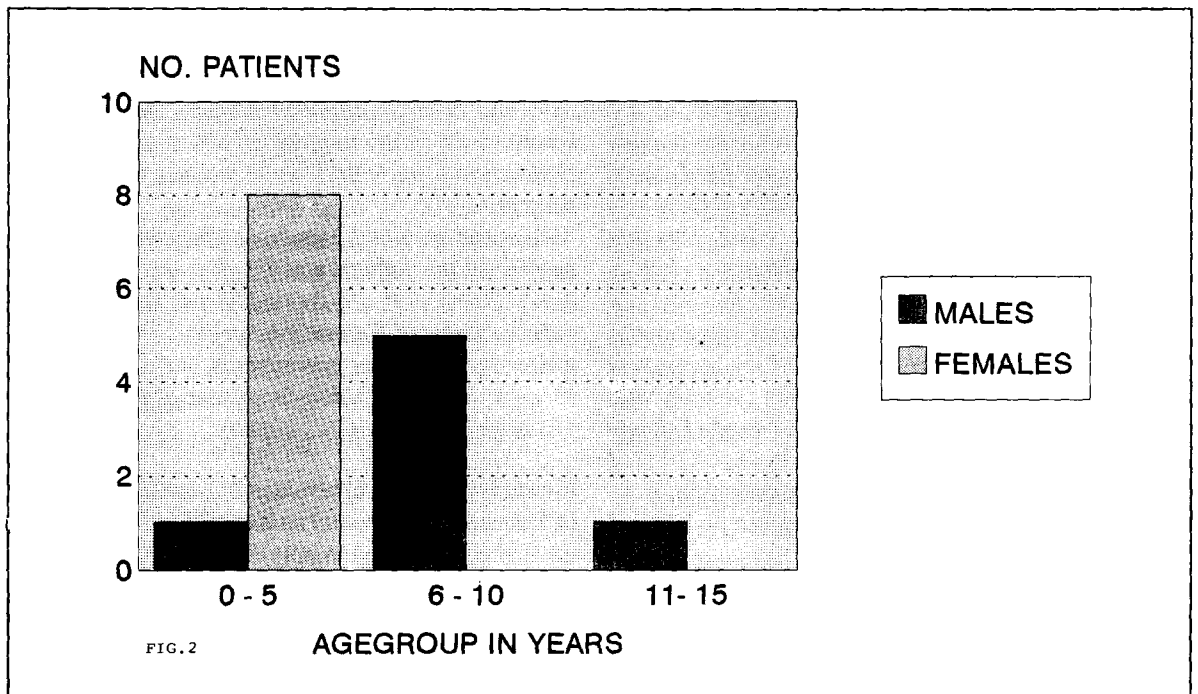


Figure 2: Age-sex distribution in children with obstructed umbilical hernia.



school children between the ages of six and 18 years.<sup>5</sup> In this Zambian study 178 children had umbilical hernia giving a percentage of 6,7 pc.<sup>5</sup>

The high incidence of umbilical hernia among Black children has been observed by several workers.<sup>1,2,3,6</sup> In the United States of America umbilical hernia is present at birth in over 50 pc of Black babies and about 20 pc of White babies.<sup>7</sup> Many causes have been advanced to explain the excessive frequency of umbilical hernia in the Black infant and small child. Jaffe stated that many of the children with umbilical herniae had family histories of hernia in one or both parents.<sup>8</sup> No variation in the incidence of umbilical hernia has been observed in relation to such socio-economic factors as might influence dietary adequacy.<sup>1</sup> Mahorner has suggested that the underlying cause of the high incidence of umbilical hernia in Blacks is probably absence of the umbilical fascia in a higher percentage of Blacks than in Whites.<sup>9</sup>

Several workers have noted that the incidence of umbilical hernia is higher in females than males.<sup>2,5</sup> Our findings in this study support his observation (M:F 1:1,2). It is not clear why the incidence of umbilical hernia in girls should be higher than that in boys. Ladd and Gross have suggested that this is possibly related to the less well developed musculature in the female.<sup>10</sup>

As a result of following up a large number of children with umbilical herniae over many years several workers have concluded that obstruction rarely develops in childhood and that prophylactic repair for this reason is not justified.<sup>2,11,12</sup> Miller, in reviewing all cases of umbilical hernia admitted to the Massachusetts General Hospital for a period of 20 years, found only one case of obstructed umbilical hernia in an infant.<sup>13</sup> It is clear from our findings in the present study that obstruction of the umbilical hernia in children in our practice although relatively uncommon, is a well recognised surgical emergency.

This difference in the incidence of obstruction between Black children in Bulawayo and in the United States of America is difficult to explain.

An environmental factor probably accounts for this difference. It is possible that the high fibre diet given to children in Africa could predispose to this condition by allowing a loop of small bowel with a food bolus to be incarcerated in the hernial sac.

Of the 15 patients admitted with obstruction over the four year period under study 14 were children and only

one was an adult. This observation is in sharp contrast to observations at the Johns Hopkins Hospital (USA) where out of 108 patients admitted with obstructed umbilical hernia 101 occurred in adults and only seven in children.<sup>2</sup> Over 90 pc were obese multiparous women and approximately 70 pc of these patients were Black Americans.<sup>2</sup> The mortality rate in this American series was 7 pc.<sup>2</sup> This observation suggests that umbilical hernia in adults is a potentially dangerous condition which once diagnosed should be repaired. Our findings in the present study however, suggest that obstructed umbilical hernia in adults is a rare condition in our practice. Unlike in the USA obesity is not a major problem in our community. This probably explains why umbilical hernia, which is largely an acquired condition in adults, is a rare condition in our practice.

Some interesting observations with implications on the management of umbilical hernia have emerged as a result of a detailed analysis of the 15 patients presenting with obstruction in this study. Obstruction occurred more in females (60 pc) than males (40 pc).

The youngest child presenting with obstruction was a girl aged one year seven months. It has been suggested that obstruction of an umbilical hernia is unusual in infants because they spend most of their time lying down. Gravity should therefore favour umbilical hernia reduction.<sup>12</sup> The average age for obstruction in girls was 2,5 years while that in boys was seven years.

Spontaneous reduction occurred in 13 cases with only one child requiring surgery for failed spontaneous reduction. Reduction of the obstructed hernia could only be achieved at operation in the single adult female patient presenting with obstruction in this series. In this study we have observed that one patient re-obstructed within a week while waiting for definitive surgery. Five other patients who settled down after spontaneous reduction and were booked for elective surgery at a later date defaulted. In view of these observations we would recommend that if closed reduction has been successful the patient should remain under observation in hospital and hernioplasty should preferably be performed after two or three days.

Apart from obstruction some of our patients required repair of their herniae because of recurrent peri-umbilical discomfort and also for purely cosmetic reasons (large herniae). Another indication for repair is an extremely thin skin over the umbilical protrusion. At least nine cases have been reported of ruptured umbili-

cal herniae in which viscera or omentum has protruded through thin umbilical skin.<sup>12</sup> This problem has not been encountered in our practice.

In conclusion, this study has shown that obstruction of an umbilical hernia is a much greater problem in children than in adults in our practice. On the basis of observations in this study we would recommend that prophylactic umbilical hernia repair should be performed in all girls over two years of age and in all children over four years of age.

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