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# DUPLICATION OF THE BOWEL: CASE REPORT

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A 3-year-old male Bantu child was admitted to the Baragwanath Hospital on 24 February 1954 with a provisional diagnosis of bilateral congenital cystic disease of the kidneys. The history, as obtained from the mother and corroborated by the doctor who sent the case in, was that the child was born with a large abdominal mass. This mass was never constant in size, but had fluctuated and on occasion had even disappeared. The patient had once been admitted to another hospital as a case of tuberculous peritonitis and had been treated with streptomycin. The swelling had subsided with this treatment. Before admission to Baragwanath Hospital the mass had increased to a size much larger than seen on any previous occasion.

After the child had been in the ward for a few days, the mass, which had presented the appearance seen in Fig. 1, suddenly diminished in size and almost disappeared. As far as could be ascertained this was not accompanied by polyuria or diarrhoea. Intravenous pyelography and straight X-ray examination of the abdomen at this stage showed no abnormality.

The child was sent to the convalescent ward for observation, and after he had been there for about 10 days, he became acutely ill, and vomited, and the abdominal mass was found to have grown fairly rapidly to its former size.

I was called to see the child at this stage. On examination, a very large dumb-bell shaped mass was felt at the level of the umbilicus stretching transversely across the abdomen. The central constriction was due to the vertebral column. The mass was cystic in nature, extremely heavy, and fairly mobile. It was dull to percussion. Having previously been painless, it was now tender, and the child tended to assume a knee-elbow position which apparently relieved the pain. Nothing else significant was found except an undescended left testis.

The child's condition deteriorated, the mass became extremely tender and the child developed signs of an acute intestinal obstruction. On 17 March 1954 it was decided to operate.

A transverse supra-umbilical incision was made. A large cystic mass was seen, which was lying transversely across the abdomen and which was adherent to the parietal peritoneum in the flanks. After the adhesions were freed the cyst was found to have a pedicle, which had been twisted through an angle of 90°. After the pedicle was untwisted this large elongated mass lay perpendicularly in the abdomen, swinging from a fairly small pedicle which was found to be continuous, at its origin, with the mesentery of the terminal ileum. There were several large vessels in the pedicle. The pedicle was clamped, ligated, and divided, and the cyst removed.

On examination (Fig. 3) the cyst was found to be completely closed at both ends. It measured 10 inches long by 3 inches across. Both ends were very much narrower than the rest of the mass, and at the point of narrowing the ends were acutely flexed on the main tumour. The cyst was found to contain 1,200 c.c. of straw-coloured fluid. A small amount of freshly shed blood was found

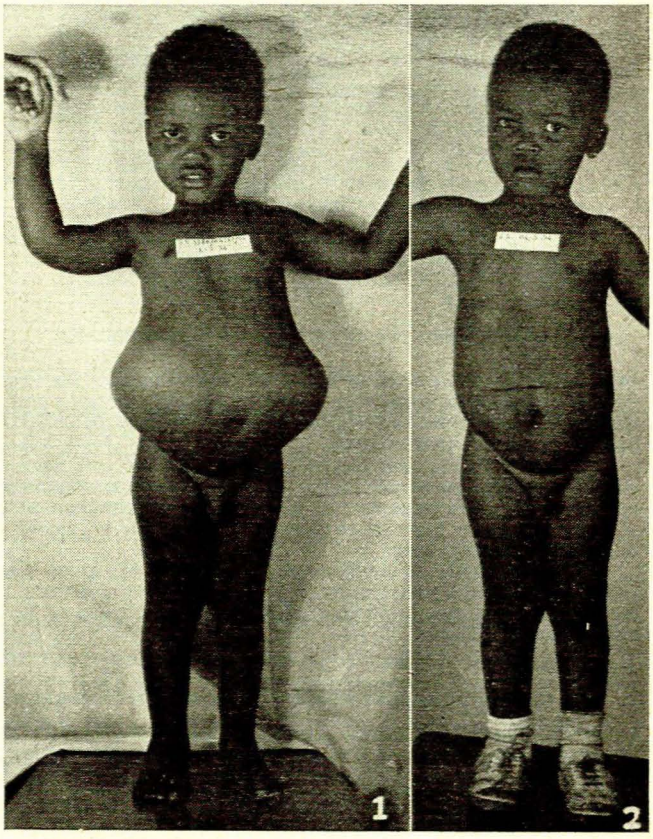


*Fig.* 1. Photograph of child taken before operation.
*Fig.* 2. Photograph of child after operation.

adherent to the wall of the cyst at its mesenteric (or pedicle) portion. Examination of the fluid showed a protein content of 3 g. per 100 c.c. There was no bacterial growth on cultivation.

Histological section was reported on as follows by Dr. B. Grobelaar of the South African Institute of Medical Research:

'Section of the large cyst shows the wall to consist of an inner circular and outer longitudinal muscle-layer, covered by a layer

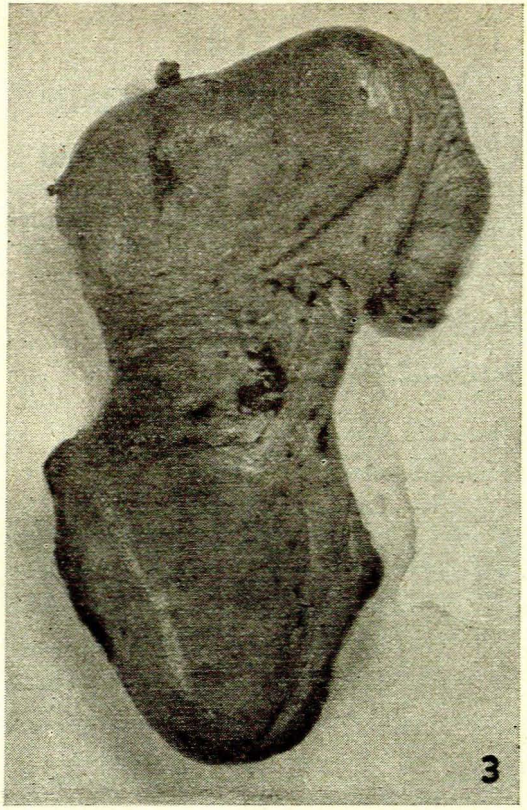


*Fig.* 3. Photograph of specimen removed from patient.

of mesothelial cells resting on loose connective tissue. The cyst is lined by a mucous membrane of columnar cells. In some areas the mucous membrane is destroyed, the wall in these parts being lined by loose connective tissue.

'Sections of the smaller terminal portions of the cyst have a similar structure, being lined by a mucous membrane consisting of numerous villi covered by tall mucin-secreting columnar cells.

'The histological features are identical with those of the wall of normal small intestine.'

The patient made an uninterrupted recovery. When he was seen some 10 weeks after the operation, the abdomen was normal in size and the previously atonic abdominal musculature had recovered (Fig. 2).

## DISCUSSION

Duplication of the bowel has been described under various names, e.g. enterogenous cyst, ileum duplex, giant diverticulum, inclusion cyst, gastric-thoracic cyst.[1] They are very rare and are almost always situated close to the ileocaecal region.[2] They may, however, present in other situations, e.g. thorax, base of tongue, and different parts of the abdomen, and are very variable in size and shape.

Interesting features of the above case were:

1. The amount of fluid present in the cyst (1,200 c.c., i.e. practically equivalent to the total circulating volume).

2. The cyst varied in size, suggesting a partial or intermittent communication with the bowel. At operation no such communication was found, and no air or obvious intestinal content was found in the cyst. Possibly the fluid may have escaped *via* the venous return after absorption through the mucosa. In Gross's series about 20% showed a communication with the bowel.[1]

Several theories have been put forward to explain the origin of duplications. It has been shown that diverticula occur normally in the foetus of pigs, rabbits, cats, sheep and humans.[3] These normally regress but one or more may persist and sequestrate off. Bremer[4] states that duplications arise when the normally solid stage of the bowel becomes hollowed in the foetus. During this stage multiple vacuoles appear which later coalesce to form a hollow tube. Failure to coalesce may give rise to atresias. It is possible that one or more of these vacuoles may not communicate with the rest and may thereby form a hollow duplication on its own, with all the histological constituents of normal bowel, and in all probability having a communication with the main tube. Du Toit[5] has reported a case with a free communication, found incidentally at operation.

## SUMMARY

A case of duplication of the bowel is described in a child aged 3. A feature of the case was that the cyst was capable, periodically, of emptying itself of its contents. Some of the theories of etiology of duplication are discussed.

I should like to thank Dr. J. Allen, Superintendent of Baragwanath Hospital, for permission to publish this case; also Dr. S. Wayburne for his assistance with the case and for his photography.

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