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SPLENECTOMY IN A RURAL SURGICAL PRACTICE

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ABSTRACT:

We reviewed the clinical presentation and indications for splenectomy in a rural community in Southern Nigeria from January 1988 – December, 2000, a period of 12 years. A total of 17 cases were seen. Twelve (70.6%) were for big spleens due to sickle-cell anaemia , tropical splenomegaly syndrome, malignancy and 5 (29.4%) were due to trauma from road traffic injuries . Anaemia was a common feature in all the cases. Patients were followed up for 18 months but all those suspected to have malignancies died within eight months of surgery. Diseased spleen is commonly seen in rural community, its management in the face of limited facilities could be tasking, but some modicum of treatment has to be offered those who may not be able to honour a referral. It is the surgical treatment thus offered that is being shared in this review.

Key words: Splenectomy, rural indications

INTRODUCTION:

The spleen has often been involved in disease conditions such as trauma, leukaemia, sickle-cell disease, parasitic infestations (e.g. malaria, schistosomiasis in the tropics), cirrhosis of the liver, cyst and abscess formation. It has been shown that under these conditions, with proper patient selection, splenectomy can be beneficial.[1-4] Patients with big spleen experience abdominal discomfort, dragging pain sensation, chronic anaemia and unsightly abdominal distension especially in children. Furthermore, due to these problems, some of the patients may request for surgical intervention which is only available in big hospitals in urban centres. However, when the required expertise is available, splenectomy can be offered in rural settings. The feature of this paper is to review the indications and other surgical aspects of splenectomy in a rural commun

MATERIALS AND METHODS:

Methodology:

We have carried out a retrospective study of splenectomies performed in a rural surgical centre located in Sabongida – Ora, Owan West Local Government of Edo State Nigeria. The case notes of all patients who had splenectomy for various indications from January 1988 to December 2000, a twelve year period were retrieved from the medical records for the review. The center has a ten-bed facility with rudimentary laboratory services, no blood transfusion or radiological facility; with the surgeon doubling as the anaesthetist. Important laboratory investigations and blood transfusion facilities are secured in advance for surgery, from a duly registered laboratory in Auchi some 40km away. In addition, major surgery is undertaken in the early hours of the day to give ample time for proper immediate post-operative care and to secure any meaningful assistance during the day in case of complications.

The data collected involved the age at presentation, sex, clinical diagnosis, indication for surgery, packed cell volume, genotype, white cell count, operative findings including the weight of the spleen and outcome of surgery. All cases of trauma and those with big spleen who opted for surgery had splenectomy. Any spleen weighing above 1500 gms was adjudged a big spleen. [1-4]

Surgery:

All patients were admitted. At least 2 pints of blood were grouped and cross-matched for surgery except those from trauma, who had blood transfusion as emergency and auto-transfusion in some cases. For this, blood was scooped from the peritoneal cavity with a sterile galipot into a sterile container and then poured through a sterile funnel layered with at least 2 rolls of sterile gauze as a filter into a plastic container of normal saline whose content has just been removed. Urethral catheter was in place to monitor fluid replacement.

General anaesthesia was used in all cases with intravenous ketamine hydrochloride and diazepam at loading doses of 2.5mg/kg body weight and 0.16mg/kg respectively. The anaesthesia was maintained with titrated doses of 0.8mg/kg and 0.04mg/kg respectively. Intravenous pentazocine lactate 0.5mg/kg body weight and promethazine hydrochloride 0.4mg/kg.were administered as pre-medication[9]. All patients had antibiotic coverage, starting with crystalline penicillin, procaine penicillin and streptomycin. These are cheap and readily

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available, but were changed to more potent antibiotics when necessary,albeit empirically, for reasons already given.

A left upper paramedian, muscle displacing incision was the choice. This was extended downwards for the big spleens. A midline epigastric incision was done for trauma related splenectomy. The spleen was examined for congestion, nodularity and severity of adhesions including other viscera for any pathology. The spleen was then exteriorized after separating the adhesions and the anterior approach of serially isolating and ligating the splenic vessels and short gastric vessels were done. Where adhesions were found to be tough, as in the cases of malignancies encountered, the spleen was only mobilized after the splenic pedicle has been duly isolated and ligated. After splenectomy, the bed was packed with hot packs for about three minutes and abdomen closed with no drain left in the splenic bed. Basic monitoring of pulse, respiration, blood pressure, temperature and urinary output were done during and after surgery. Oxygen by mask was administered intermittently for the sickle-cell anaemia patients. Forty-eight hours after surgery, oral fluids commenced, while early ambulation in the first twenty-four hours was encouraged. Patients were followed-up as outpatient and any complaints relating to the surgery note

RESULTS:

In the period under review, 1,250 major operations were done in the center; of these 17 cases were for splenectomies, accounting for 1.4% of all major operations. There were 10 males and 7 females, a ratio of 1.4 : 1. The mean age was 25.9 years with a range of 12 – 61 years. The indications for splenectomies include: trauma 5 (29.4%) cases all from road traffic injuries, and diseases causing big spleen 12 cases.(Table 1) The diagnosis in this later group were mainly clinical including findings at surgery, except for the sickle-cell patients. These had genotype confirmation in big centres at the time of presentation . The malignant group had extremely big spleen mean weight 3.2 kg, very nodular, with severe fibrous adhesions, while the tropical splenomegaly syndrome group had normal looking spleen with few flimsy adhesions Table 2. & fig. 1

The mean weight of sickle-cell spleen group was 1.84 kg with a range of 1.5 – 2.0 kg. The malignant group had a mean weight of 3.2 kg with a range of 2.0 – 4.9kg. The two cases of tropical splenomegaly syndrome group weighed 2kg and 2.5kg respectively. Inspite of the low PCV of the sickle-cell anaemia group, none required more than 2 pints (1000cc) pre and post surgery; while the malignant group had an average blood transfusion of about 8 pints (4000cc). (Table 2)

Patients were followed up for about eighteen months. No complications of note, especially increase in infection rate were observed amongst the trauma, sickle-cell anaemia and tropical splenomegaly syndrome groups. As for the malignant cases handled, all died within eight months from metastasis.

Table 1. **Indications for Splenectomy**

Indications	N	%
Trauma	5	29.4
Sickle-cell Disease	5	29.4
Malignant Conditions	5	29.4
Tropical Splenomegaly Syndrome	2	11.8
TOTAL	**17**	**100**

Table 2 **Breakdown of the Big Spleen**

	Sick-cell (n=5) Anaemia	Malignant N=5	Tropical Splenomegaly Syndrome (n=2)
Male: Female	4: 1	3: 2	1: 1
Mean Age	11.8	40	20yrs & 25 yrs.
(Years) Range	(10 – 15)	(19 – 61)	
Mean weight of spleen in kg.	1. 84	3.2	2.0 & 2.5
(Range)	(1.5 – 2.0)	(2.0 – 4.9)	
Mean Blood volume Required in cc	1000cc	4000cc	1000cc
Mortality if any	0	5	0
Outcome of surgery	Uneventful	High mortality and Morbidity	Uneventful.

DISCUSSION:

Splenectomy is indicated in some pathological states.[1-5] In trauma, it is quickly done to salvage a haemorrhaging patient. [6] This was the experience in our rural practice where auto-blood transfusion was practiced with no adverse effect.

Splenectomy for big spleen is premised on the fact that in a severely congested spleen, the immunological function will not be expected to be optimum. [2.3.4.7] The sequestration of vital blood components within the organ, invariably deprives the blood of these cells hence, there is chronic anaemia which was seen in this report. This could not be conservatively corrected by blood transfusion as was seen in the cases of sickle-cell anaemia and tropical splenomegaly syndrome.

Splenectomy for big spleen was found to be good for sicklers in our series. None required further blood transfusion in the period of follow-up as compared to their pre-operative states. However, the operative risks must be appreciated moreso, in a rural practice where facilities are inadequate. There is need for intermittent oxygenation via face-mask and the maintenance of good hydration with speed at surgery. As for the malignant group, the high mortality experience is similar to that seen in specialized centres. [1. 2.] However, with upgrading of facilities and better patient selection for surgery, some of these patients could be further assisted, in order to meet the high expectation from surgery in rural community.[5]

General anaesthesia using ketamine, diazepam, pentazocine and promethazine was employed in all the cases. These agents have been found to be quite safe and reliable in the hands of non-experts. Hence their common usage in general practice where anaesthetic experts are not easily available.[8] Pencillin and streptomycin were the first choice of antibiotic coverage for all the patients. This choice was informed by its being easily available and affordable. In addition, penicillin has been found to be quite active against pneumococal organism, which has been implicated in severe post-splenectomy sepsis.[9] None of such sepsis was seen either in the immediate post-operative period or during the eighteen months of follow-up in our series. Nonetheless, since the average age in this report is 25 years and such post splenectomy sepsis has been reported to be quite common and severe in children less than 5 years, it is not surprising that this was not encountered in our series. Splenectomy in a rural setting can be daunting. However, with good patient selection and available expertise, it can be offered to patients with trauma, sickle-cell anaemia and tropical splenomegaly syndrome with some success as shown in this report.

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