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SAFETY OF DAYCARE HERNIA REPAIR IN JOS, NIGERIA

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ABSTRACT

Objective: To evaluate the safety of day surgery for inguinal hernia.

Design: A randomised prospective study of patients presenting for elective inguinal hernia repair.

Setting: Jos University Teaching, Jos, Nigeria.

Subjects: One hundred and twenty one patients who completed a six-week follow up period.

Interventions: Sixty one patients had elective hernia repair as daycares while 60 patients were treated as inpatients. Forty six herniotomies and seventy five herniorrhaphies were performed under local or general anaesthesia.

Main outcome measures: Early post-operative complications, including wound complications were evaluated.

Results: Early post-operative complications occurred in two of the 61 daycares and 15 of 60 inpatients ($p=0.002$). There were twelve and ten wound complications in daycares and inpatients respectively ($p = 0.668$). There was no mortality.

Conclusion: Outpatient elective inguinal hernia repair in carefully selected patients is relatively safe in our environment.

INTRODUCTION

For many years, it was the custom to admit and confine to bed patients for all but the most trivial surgical operations(1). High complication rates for anaesthesia and surgery may at one time have given good grounds for such cautious policies(2). With advancement in both anaesthetic and surgical techniques, these factors no longer apply. The benefits of early mobilisation after operation are now well appreciated(2), thus reducing the duration of hospital stay in general surgical patients. Recently, the practice of operating and returning the patient home on the same day has been advocated.

Daycare inguinal hernia repair has been shown to enhance quality care with low rates of complication(3). Despite these advantages, some surgeons are still fairly conservative. This is borne out of the concern that day surgery might lead to missed complications and untreated pain(4), lower standards of surgical care and cause unnecessary distress, inconvenience and hazards to patients(5). Others are afraid that a complication developing at home would result in litigation(6).

Though outpatient inguinal hernia repair has been a practice by some surgical units in our centre, this is the first reported controlled study on its safety and post-operative outcome.

MATERIALS AND METHODS

One hundred and twenty one patients who underwent elective inguinal hernia repair at the Jos University Teaching Hospital (JUTH) between May 1996 and April 1997 were the subjects of this randomised controlled prospective study. Informed consent was obtained from patients and /or relations, and from the hospital committee on ethics. Inclusion criteria were: age between two months and sixty years; patients living in Jos metropolis with easy accessibility to hospital; and living with a responsible relative. Excluded from the study were patients on antibiotic or steroid medications, diabetics; and patients presenting with obstruction, strangulation or recurrent inguinal hernias. The 121 patients preselected for suitability were randomised into daycare group (61 patients) and inpatient group (60 patients). Randomisation into the two groups was by the toss of a coin for the first patient and subsequent patients were placed in alternate groups. All patients were placed nil per os from the previous midnight. The number of people examining the hospitalised group on admission and all patients before surgery was not determined. Patients were placed on intravenous fluids only in the theatre to keep the lines open. Forty six patients had herniotomy while 75 patients had herniorrhaphy. Local anaesthesia with 1% xylocaine (lignocaine) without adrenaline was used in 50 patients, while general anaesthesia was used in 71 patients. Inpatients were not more likely to have a general anaesthesia than daycares nor daycares more likely to have local anaesthesia than inpatients. One hundred and four patients had unilateral inguinal hernia repair, while 17 patients had bilateral hernia repair at the same sitting; all through a transverse crease line groin incision. All

wounds were closed subcuticularly with non-absorbable (nylon) suture, which was removed seven days after operation in all patients. Post-operative analgesia consisted of an initial single parenteral dose of morphine or pethidine in the immediate post-operative period, followed by oral paracetamol for five days. Antibiotics were not used routinely pre, per or post-operatively.

Daycare patients were discharged home on the day of operation when it was ascertained that they had fully recovered from anaesthesia, were taking fluids by mouth and had voided satisfactorily. Inpatients were admitted a day before operation and discharged two to five days after surgery. While on admission, inpatients were reviewed daily for any such problems as pain, bleeding from operation site, foul odour or discharge from the wound, fever and for any other complaints. All patients were reviewed on the seventh day after operation. During this first visit, the wounds were inspected and stitches were removed. Patients were subsequently followed up for a total of six weeks postoperatively for any complaints or wound complications. Only wounds that showed clinical evidence of infection were subjected to culture and sensitivity test, and appropriate antibiotics were given where indicated.

Analysis was done on computer using EPI-INFO version 6.03. The Chi-square test was used to compare early postoperative and wound complications. Statistical significance was defined as $p < 0.05$.

RESULTS

The average age was 25.92 ± 20.45 years with a male to female ratio of 11.1:1. The distribution of hernia was 66 right, 38 left and 17 bilateral. Of 17 early postoperative complications, two were among daycares with the remaining 15 occurring in inpatients ($\chi^2 = 10.09$, $p = 0.002$ Yates correction). These complications (Table 1) included bleeding in four, fever in three, chest complications in two, pain at operation site in one, haematuria in one; and others, five. Complications classified as others were headache, three, all among inpatients; diarrhoea, one, in an outpatient; and a case of sore throat in an inpatient. There were 22 wound complications (Table 2); twelve and ten among daycares and inpatients respectively ($\chi^2 = 0.18$, $p = 0.668$). These included haematoma, discharge, induration/hyperaemia, wound edge separation and stitch abscess.

Table 1

Early post-operative complications in 138 inguinal hernia repairs among 121 patients

Complication	Treatment group		Total
	Daycare	Inpatient	
Vomiting	1	0	1
Bleeding/oozing	0	4	4
Pain at operation site	0	1	1
Fever	0	3	3
Haematuria	0	1	1
Chest complications	0	2	2
Other complications	1	4	5
Total	2	15	17

$\chi^2 = 10.09$ Yates correction.
 $P = 0.002$

Table 2

Post-operative wound complications in 138 wounds assessed among 121 patients

Wound complication	Treatment group		Total
	Daycare	Inpatient	
Induration/hyperaemia	1	1	2
Haematoma	6	3	9
Wound edge separation	2	0	2
Discharge	3	4	7
Stitch abscess	0	2	2
Total	12	10	22

$\chi^2 = 0.18$
 $P = 0.668$

Of the 22 wound complications, eleven showed clinical evidence of wound infection (Table 3); four and seven among the daycares and inpatients respectively ($\chi^2 = 0.40$, $p = 0.529$ Yates correction). Subjecting these to microbiological culture, only six swabs grew *Staphylococcus aureus*, sensitive to erythromycin and gentamicin. One positive culture among four daycares, and five among seven inpatients ($\chi^2 = 4.41$, $p = 0.080$ Fischer Exact 2-tail). Overall, the clinical wound infection rate was 7.79%, and a bacteriological wound infection rate of 4.3%.

Table 3

Clinical and culture proven wound infections in the two treatment groups

Characteristic	Treatment group	Infected	Not infected	Total	p-value
Clinical wound infection (n= 138)	Daycare	4	65	69	2=0.40 Yates correction
	Inpatient	7	62	69	
	Total	11	127	138	$P = 0.529$
Wound culture (n = 11)	Daycare	1	3	4	2 = 4.41 Fischer exact 2-tail
	Inpatient	5	2	7	
	Total	6	5	11	$p = 0.080$

One daycare was converted to the inpatient group after operation giving a conversion rate of 1.6%. Similarly, one daycare was readmitted one day after operation because of persistent vomiting while at home, giving a readmission rate of 1.6%.

DISCUSSION

In the context of daycare surgery, a complication becomes significant if it retards a patient's recovery more than if the patient had remained in hospital, if it interferes with planned discharge, necessitates readmission, involves

the general practitioner or the district nurse in an excessive workload, or causes undue distress or anxiety for the patient or his relatives(5). This study has demonstrated a significant difference in the incidence of early post-operative complications in favour of daycare patients. This is in contrast to the reports of Russell *et al*(7) and Kornhall *et al*(8) in which there was no significant difference between daycares and inpatients. However, as reported by Russell and Kornhall, there was no significant difference in the incidence of wound complications between the two treatment groups. Similarly, there was no significant difference in the occurrence of clinical and bacteriologic wound infection rates; parameters, which had not been evaluated in previous studies.

The significant difference observed in early post-operative complications could possibly be due to the fact that similar complaints or problems could have been overlooked or ignored by daycare patients since there was no professional nearby to complain to. Though not statistically significant, the numerical difference in wound infection rate between daycares and inpatients could be explained by the fact that three of the four wounds whose dressings were changed within the first 48 hours of operation amongst inpatients due to oozing from the operation site grew organisms on culture (all *Staphylococcus aureus*). Such organisms could have been inoculated into the wounds during dressing changes. As with other studies, there was no mortality in our study. This was probably due to the strict selection criteria, as has been the experience in other series(9,10). The role of general practitioners and community nurses in patient selection and post-operative home visits; and the availability of facilities for effective communication as advocated by Dean and Wilkin, are non-existent in our environment. We depended mainly on the ability of the patient or his relations to come back to the hospital should there be a problem at home; hence the need for the strict selection criteria employed; as patient selection is the cornerstone of successful day surgery(11).

In conclusion, this study has demonstrated advantages for elective outpatient inguinal hernia operation as shown by comparable complication rates with inpatient treatment, and a possible reduction in the incidence of hospital acquired wound infections. Thus, elective daycare inguinal hernia repair in selected patients with no subsequent community medical support is feasible and has no adverse early clinical effects on patients.

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