

Treatment strategy of inguinal hernia in infants and children in Eastern Libya

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ABSTRACT

Objective: The aim of the study is to evaluate and improve the treatment strategy of inguinal hernia in children.

Methods: A retrospective analysis was performed on the hospital notes and operation records of 827 (681 boys and 146 girls) children who underwent inguinal herniotomy at Al-Fatah Children Hospital, Benghazi, Libya, between 1998 and 2002.

Results: Eight hundred and sixty-five inguinal herniotomies were performed on 827 children. In 497 patients, operations were performed on the right side, in 292 on the left side, and in 38 bilateral. Thirty-nine (4.7%) children presented as emergencies with irreducible hernia, of which 29 (74.4%) patients

underwent emergency herniotomies while the remaining 10 (25.6%) patients could be treated with conservative measures at the time of admission. Postoperative complication rate for elective was 6.3% and for emergency groups was 24%. The overall postoperative complication rate was 6.6%. There were 5 recurrences giving a recurrence rate of 0.5%.

Conclusion: Early detection and repair of inguinal hernia in infancy and childhood is essential to decrease the potential operative morbidity rate. This needs an increase in parental awareness. Quick and prompt referral of irreducible hernias for surgery is strongly recommended.

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I nguinal hernia repair is one of the most common surgical procedures performed in infants and children. Irreducibility is a frequent complication of inguinal hernias,¹ with a high risk of strangulation and subsequent intestinal and testicular infarction.^{2,3} Eighty four to ninety four percent of irreducible inguinal hernias can be reduced conservatively while the remaining needs urgent surgical repair.^{3,4} The reduction of irreducible inguinal hernia is influenced by the duration of symptoms at presentation and the age of the child.⁴ Therefore, serious complication may occur even after conservative reduction.⁵ There is an increased incidence of postoperative complication associated with irreducibility.⁴ Early diagnosis and treatment thus are important if these complications are to be

avoided. This article aims at reporting our experience with 856 inguinal herniotomies in infants and children, highlighting areas of epidemiology, irreducibility, recurrence, pathology as well as aspects of our management.

Methods. The hospital records and operation notes of all children up to 12 years of age who underwent inguinal herniotomy at Al-Fatah Children Hospital, Benghazi, Libya from the first of January 1998 to the end of December 2002 were reviewed retrospectively. The operations were performed by consultants and registrars. The following variables were noted: age at operation, gender, laterality and the type of the surgery

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(Emergency or elective). Children whose primary complaint were inguinal hernia but were later found to have undescended testes were also included in this study. Postoperatively, the patients were followed up in the clinic at 2 weeks and at 6 months.

Results. Eight hundred and twenty-seven consecutive patients who underwent 865 inguinal herniotomy procedures between January 1998 and December 2002 were included in this study. There were 681 (82.3%) boys and 146 (17.7%) girls, with a ratio of 4.6:1. Their ages at the time of operation ranged from 4 weeks to 12 years old (mean 47.3 months). Inguinal hernia was right sided in 497 (60%), left sided in 292 (35.3%) and bilateral in 38 (4.5%) patients. Nine of the unilateral and 10 of the bilateral hernias were associated with undescended testis (2.3%) for which an orchidopexy was performed at the time of herniotomy. At the time of operation the sac was empty in 700 cases. In the remainder the sac contained omentum (46), hydrocele (38), bowel (34), and gonads (9). Seven hundred and eighty-eight children were seen and admitted on an elective basis, while 39 (4.7%) children were seen and admitted as an emergency due to irreducible hernias. All the cases of irreducible hernia were males. Twenty-nine cases of the irreducible hernias were on the right side; whereas only 10 cases (25.6%) were on the left side. Of these 39 children 24 (61.5%) were under one year old, 11 (28.2%) were <5 years old and only 4 (10.2%) were over 5 years old. Our management policy for those with irreducible hernia is conservative to start with, including gentle taxis combined with sedation, if necessary. If reduction was achieved, the child was discharged and readmitted after one week for an elective herniotomy. If reduction was impossible, emergency surgery was performed immediately. Only 10 (25.6%) of the 39 irreducible cases were reduced conservatively, while the remaining 29 (74.4%) cases underwent emergency herniotomy.

There were 50 (6.62%) cases of postoperative complications in the elective group and 7 (24.1%) in the emergency group with an overall complication rate of 6.6%. The complications were scrotal swelling (34), wound infection (16) and chest infection (7). On follow up, there was a recurrence in 5 children (one emergency and 4 elective patient) giving a recurrence rate of 0.5%. The recurrence was on the right side in one patient and on the left side in 4 patients. All these recurrences occur in males. One presented within 4 months of operation while in the remaining patients recurrence occurred from 6 months to 3 years after the initial surgery. There was no documented testicular atrophy or injury to the vas in our patients.

Discussion. Al-Fatah Children Hospital is the only pediatric surgery hospital in the Eastern part of Libya serving a population of more than 1.5 millions. This can explain such a large number of cases in 4 years period of time. As children start school at the age of 6 years in Libya, the involved patients were divided into pre-school age group and school age group. The pre-school group includes neonates, infants, and children with age from 1-5 years. Five hundred and ninety-one patients (71.5%) were under pre-school age group. Neonates and infants accounted only for 33.3% of their group; whereas 66.7% were children over one year of age. This finding is contrary to other reported data where 50% of the patients are less than one year of age.¹ This indicates that there is a late presentation and diagnosis of children with inguinal hernias. Diagnosis of hernia in children depends completely on the clinical examination and the history given by the parents who frequently report an intermittent bulge, which may reduce at night while the child lying down. Therefore, our finding highlights the importance of routine periodic medical check up for neonates and infants, the role of community health visitors,⁶ and medical awareness among parents. There is a high incidence of irreducibility and strangulation of inguinal hernia in children especially in younger children.³ Hence, inguinal hernias in infancy and childhood can be life threatening and may result in the loss of testis, ovary or a portion of bowel.^{3,4} In our study, 4.7% of patients were presented as emergency cases, which are lower than those reported by other series.^{1,3,7} This can be attributed to our policy in which we perform an early elective herniotomy for infants and children with reducible inguinal hernia within one week of their initial presentation. Eighty to 93.7% of irreducible hernias can be treated conservatively,^{3,4} the rest needs emergency herniotomies. However, conservative management was successful only in 25% of emergency cases presented to our department. This is explained by the delay in referring of these patients from the district hospitals and prolonged duration of irreducibility. Since conservative trials are not always success, these trials should not be carried out in district hospitals where emergency herniotomy cannot be performed. A restricted time should also be set for these trials. The incidence of irreducibility was higher in males than in females and in the right side than the left. Sixty four percent of patients with irreducible hernias were under one year of age; this finding is similar to other reported series.^{3,7} Possibility of strangulation thus increases in younger patients. This again emphasizes the importance of parent's awareness and routine medical check up in infancy and childhood. Emergency herniotomy is a difficult operation in infants and neonates because of the edematous

structures around the sac, which makes dissection of the cord structures more difficult.⁸ In this study, there was only one patient (4 months old) presented with a gangrenous bowel, which required bowel resection at the time of herniotomy. The overall postoperative complication rate was 6.6% which is slightly higher than the reported rate;^{1,8} however, more than half of postoperative complications were scrotal swelling, which responded to simple measures (none of these patients developed testicular atrophy on follow up). Postoperative complications were higher after emergency herniotomy. This is in consistence with other reported series.^{3,7,9} Recurrence rate after inguinal herniotomy in children is reported to range from 0.6-4%.^{8,10,11} The most common causes are failure to identify the sac or to ligate it high enough at the internal ring.⁷ In this series, hernia recurred in 5 of the 827 children, with a recurrence rate of 0.5% which is lower than other reported series. This can be explained by fact that most of the herniotomies in our institution are performed by the consultants or (in few instances) under their direct supervision. The practice of careful dissection and high ligation of the hernia¹ sac is to be recommended, in order to reduce this postoperative morbidity. There is still controversy concerning the exploration of contra lateral groin in children with unilateral hernia. However, in our hospital we do not normally explore the silent contralateral groin. We feel that the low incidence of contra lateral hernia,¹²⁻¹⁴ the risk of injury to the cord structures and testis during the exploration,¹³ and the increase in the operating time does not justify routine contra lateral exploration. Moreover, no morbidity will result from waiting for the contra lateral hernia to develop.¹⁵

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