



ORIGINAL ARTICLE

FEMORAL HERNIA: A LIMITED EXPERIENCE WITH A RARE LESION IN PEDIATRIC AGE GROUP

Khairi Ahmed,¹ Shehata Sameh,¹ Hassab Hani²

¹Pediatric Surgery Units, Alexandria Faculty of Medicine, Alexandria University, Egypt, ²King Fahad Medical City, Riyadh, KSA

Correspondence to: Khairi Ahmed, Email: ahmedkhairi@hotmail.com

Abstract

Aim: Femoral hernias are rare in children. The incidence ranged from 0.1% to 1% of all groin hernias in pediatrics. They are often missed clinically. We present our experience and compare it with others.

Methods: this is a retrospective study of the cases of femoral hernias managed by the authors over a period of 15 years (January 1995 – December 2009). The files of the patients were reviewed regarding the age at the time of presentation, sex, diagnosis, side, approach of surgical repair as well as follow up. Literature review of the same topic was compared.

Results: Seventeen femoral hernias in 12 children (5 males and 7 females) were repaired. Age ranged from 3-10 years (mean 6.4). There were 4 (33%) right side, 3(25%) left side and 5 (42%) bilateral. Correct preoperative diagnosis was made in 7 patients (58%). Five (42%) patients had incorrectly been diagnosed as inguinal hernia. Thirteen cases (76%) were repaired through the low (infra-inguinal) approach and 4 (24%) via the high (inguinal) one. No case had recurrence over the follow-up period (1 – 3 years).

Conclusions: Still the incorrect preoperative diagnosis of childhood femoral hernia is high. Remembering it among the differential diagnosis of groin swellings in children, together with the ability to recognize it intra-operatively, could prevent unnecessary second operations.

Keywords: Femoral, Inguinal, Hernia, Groin, Child.

INTRODUCTION

Femoral hernias are rare in children. The incidence ranged from 0.1% to 1% of all groin hernias in pediatrics.⁽¹⁻⁵⁾ They are often missed clinically and commonly presented either as early recurrence of groin swellings following inguinal hernia repairs, or as an intraoperative finding when the inguinal exploration is not showing the usual sac of the inguinal hernia.⁽⁶⁻⁷⁾ Our

aim is to review our experience and compare it with others.

PATIENTS AND METHODS

This is a retrospective study of the cases of femoral hernias managed by the authors over a period of 15 years (January 1995 – December 2009). The files of the patients were reviewed regarding the age at the time of

presentation, sex, diagnosis, side, approach of surgical repair as well as follow up. Literature review (Medline search) of the same topic was compared.

RESULTS

Seventeen femoral hernias in 12 children were repaired by the authors over the study period; 5 (42%) males and 7 (58%) females. Age ranged from 3 to 10 years (mean 6.4). There were 4 (33%) right side, 3 (25%) left side and 5 (42%) bilateral hernias. No case presented with incarceration. Four children (33%) had Marfan-like features with fingers & toes webs and high arched palates; one of them presented with bilateral hernia. The correct preoperative diagnosis of femoral hernia was made in 7 patients (58%). Five patients (42%) had incorrectly been diagnosed as inguinal hernias. In these cases, the correct diagnosis of femoral hernia was made intra-operatively during the surgical repair of the presumed inguinal hernia in one (20%) patient, whereas 5 (80%) had previous inguinal hernia repairs and presented with recurrent groin swellings (Fig. 1). The mean time between the inguinal hernia repairs and the recurrent groin swellings was 4 months. Thirteen cases (76%) were approached through low (infra-inguinal) incision (figure 2) using Cooper's type of repair.^(2,8,23) Four cases (24%) were repaired through the high (inguinal) approach (Fig. 4) using the Mc Vay type of repair.^(2,8) No case had recurrence over the follow-up period (1-3 years).

DISCUSSION

Femoral hernia accounts for approximately 5-10%(9) of all groin hernias in adults. In children the incidence drops to less than 1%,^(4,6,25) and misdiagnosis is still high. This has been well recognized and documented.^(9,10,14) Even the expert pediatric surgeons have limited experience with such condition.^(1,2,6,11,12) The biggest series had rates of 2-2.5 cases per year at maximum.^(7,13,14) However, most other series had an average of 1-1.5 case every 2-3 years. ^(6,11,15) Table 1.

Unfamiliarity with the occurrence of this condition may lead to incorrect diagnosis and delayed treatment.^(9,10,16,24) Correct preoperative diagnosis ranged between 12% - 90% (mean 44.3%) Table1. This depends on the degree of awareness of the condition among the differential diagnosis of groin swellings in children. Careful "inspection" of the anatomical relationship of the swelling to the inguinal ligament was the most important point for the correct preoperative diagnosis in our study (Fig. 1). Intra-operative diagnosis of this condition is possible, provided that the surgeon is aware of the anatomical relationship of the femoral hernia to the cord structures (Fig. 4). The absence of the usual inguinal hernia sac should raise the possibility of femoral hernia. However, the presence of an associated patent processus vaginalis in some children could make this more difficult.⁽¹³⁾

Early recurrence of groin swellings after repair of a "presumed" inguinal hernia (a mean of 2.5 months)⁽⁷⁾ should also raise the possibility of femoral hernia. We had a mean time of 4 months before that recurrence. Some authors even suggested that the repair of the inguinal hernia could be a precipitating factor for the development of the femoral hernia later on.⁽²¹⁾

We did not have any case of incarceration, however in big series, the incidence ranged from 24% to 48%.^(1,2,19) Sometimes, this was the mode of the first presentation.^(1,17-20,22)

Four of our cases (33%) had Marfan-like features. We believe that cases with musculo-skeletal disorders presenting with groin hernias should have special attention for the possibility of femoral hernias.

Although repair through the inguinal incision was possible for cases diagnosed intra-operatively, the low (infra-inguinal) approach was relatively easier for cases diagnosed pre-operatively as well as for cases with previous inguinal incisions; avoiding scaring and going through virgin tissue planes (Fig. 2). The femoral vessels were too close to the sac neck and careful dissection was needed to avoid any injury.⁽²⁰⁾ (Fig. 3) Recently, laparoscopic-assisted repair of femoral hernia in children has been presented by some authors.⁽²⁶⁾

The incorrect preoperative diagnosis of femoral hernia in children is still high. Remembering it as one of the possibilities of groin swellings in children, together with the ability to identify it intra-operatively, could prevent unnecessary second operations.



Fig 1. Femoral hernia; the anatomical relationship with the inguinal ligament. The scars of the previous repairs of "presumed" inguinal hernias are seen; a common situation.

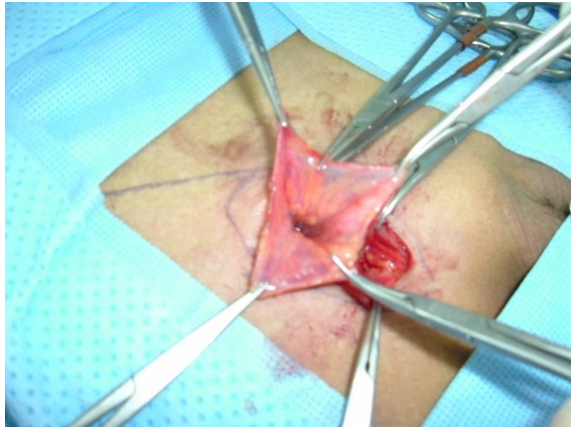


Fig 2. Femoral hernia; low approach, the sac dissected.

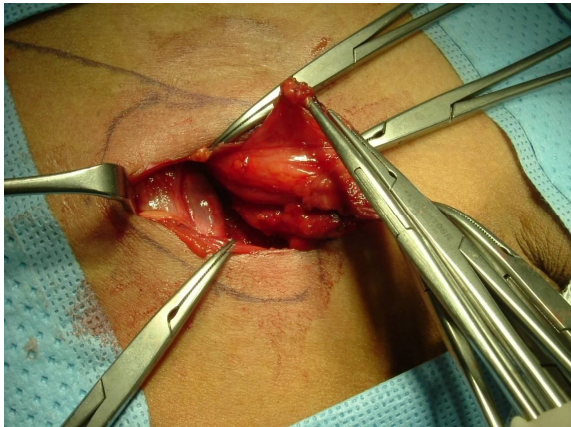


Fig 3. Femoral hernia; low approach. Notice the close relationship with the femoral vein.

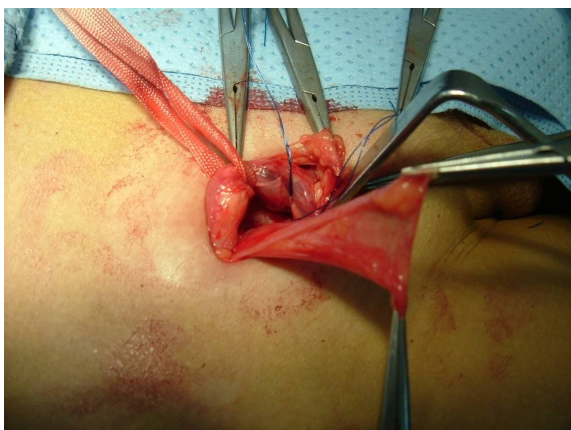


Fig 4. Femoral hernia; high approach. This was diagnosed intra-operatively when the usual inguinal hernia sac was missing.

Table 1. Number of cases of femoral hernias/duration & correct preoperative diagnosis incidence in different series.

Authors (publication year)	Cases No./Duration (yrs)	Correct Preop. Diagnosis
Marshall ⁽¹²⁾ (1983)	10/15	9 (90%)
Zamanet al. ⁽¹⁵⁾ (1985)	12/N.A	3 (25%)
Anderas et al. ⁽³⁾ (1987)	6/10	2 (33%)
Chapman et al. ⁽⁴⁾ (1991)	6/10	2 (33%)
Asai et al. ⁽¹⁹⁾ (1992)	*25	3 (12%)
Lugue et al. ⁽¹⁰⁾ (1993)	11/15	6 (54.5%)
O'llero et al. ⁽¹¹⁾ (1997)	38/15	22 (57.8%)
Al-Shanafey et al. ⁽¹³⁾ (1999)	17/21	6 (35%)
De Caluwa et al. ⁽⁷⁾ (2003)	38/21	20 (53%)
Khairi et al (2009)	12/15	7 (58%)

N.A: not available

*****: Review of Japanese literatures till 1992, yrs:years.

Preop.: preoperative.

REFERENCES

- Burke J. Femoral hernia in childhood, *Ann Surg.* 1976;166:287.
- Fonkalsrud EW, deLorimier A, Clatworthy HW Jr. Femoral and direct inguinal hernias in infants and children, *JAMA.* 1965;192:101.
- Fonzone Caccese A, Caccioppoli U, Aliotta A. Femoral hernia in childhood: a rare entity, *Pediatr Med Chir.* 1999;21:145-8.
- Chapman WH, Barcia PJ. Femoral hernia in children: an infrequent problem revisited, *Mil Med.* 1991;156:631-3.
- Radcliffe G, Stringer MD. Reappraisal of femoral hernia in children, *Br J Surg.* 1997;84:58-60.
- Anderas P, Jona JZ, Glicklich M. Femoral hernias in children. An infrequent problem, *Arch Surg.* 1987;122:950-1.
- De Caluwa A D, Chertin B, Puri P. Childhood femoral hernia: commonly misdiagnosed condition, *Pediatr Surg Int.* 2003;19:608-9.

8. Glassow F. The surgical repair of inguinal and femoral hernias, *Can Med Assoc J.* 1973;108:308-13.
9. Hair A, Paterson C, O'Dwyer PJ. Diagnosis of a femoral hernia in the elective setting, *J R Coll Surg Edinb.* 2001;46:117-8.
10. Lague Mialdea R, de TomAis Palacios E, CerdAi Berrocal J. Femoral hernia in children, *An Esp Pediatr.* 1993;38:135-8.
11. Ollero Fresno JC, Alyarez M, Sanchez M, et al. Femoral hernia in childhood: review of 38 cases, *Pediatr Surg Int.* 1997;12:520-1.
12. Marshall DG. Femoral hernias in children, *J Pediatr Surg.* 1983;18:160-2.
13. Al-Shanafey S, Giacomantonio M. Femoral hernia in children, *J Pediatr Surg.* 1999;34:1104-6.
14. Nayeem N. Femoral hernia in children, *Br J Clin Pract.* 1990;44:383.
15. Zaman K, Taylor JD, Fossard DP. Femoral herniae in children, *Ann R Coll Surg Engl.* 1985;67:249-50.
16. Muratoy ID, Baklan VG. Incarceration of femoral hernia in a child. *Khirurgiia (Mosk).* 1989;11:136-7.
17. Tasker DG. Femoral hernia. a continuing source of avoidable mortality, *Br J Clin Pract.* 1982;36:141-4.
18. Hem E. Femoral hernia in children. A case with strangulation, *Tidsskr Nor Laegeforen.* 1970;90:1547-8.
19. Asai A, Takehara H, Okada A. A case of femoral hernia in a child, *Tokushima J Exp Med.* 1992;39:145-7.
20. Niemann F, Kovacicek S, Sailer R. Blood vessel injuries in inguinal and femoral hernia surgery, Compulsory surgical care and criteria for malpractice, *Zentralbl Chir.* 1971;96:408-12.
21. Haberlik A, Sauer H. Treatment of femoral hernia in children, *Chirurg.* 1990;61:289-91.
22. Bourke JB. Strangulated femoral hernia in a female child of three years and nine months, *Br J Surg.* 1968;55:880-1.
23. Cooper AP. The anatomy and surgical treatment of abdominal hernia; London, 1805-1807, Longman & Co.
24. Yadav RP, Agrawal CS, Adhikary S, Regmi R, Gupta RK, Sapkota G. Pediatric Femoral Hernia. *J Nepal Med Assoc.* 2008;47:241-3.
25. Hachisuka T. Femoral hernia repair. *Surg Clin North Am.* 2003;83:1189-205.
26. Obinna OA, Erik NH, Frederico GS, Cathy AB, Oliver J.M. Laparoscopic-assisted repair of femoral hernias in children. *J Lapendosc Adv Surg Tech.* 2009;19:691-4.