IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 14, Issue 8 Ver. IV (Aug. 2015), PP 36-40
www.iosrjournals.org

Hooking Of the Cord Makes Congenital Inguinal Hernia Single Stitch

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Abstract:
Background: *Inguinal Hernia is a common finding in infants & Childrens required surgical repair. Incidence 1 – 4.4% pathology is failure of obliteration of Patent Processus Vaginalis and canal of nuck in female.It occurs, in Boys is six times more than the Girls. Congenital inguinal Hernia can be life threatening, There are various methods for surgical treatment of hernia and hydrocele in children with variable cost effectiveness, recovery and cosmetic out come. This study analyses our experience with minimal invasive herniotomy in children with small incision, with good result.*
Aims And Objectives*: 1.To stydy the herniotomy with small incision and proper identification of sac by hooking of cord (J.Hook). 2. To study reduction of operative time. 3. To study the incidence of congenital inguinal hernia and successful herniotomy. 4. To study feasibility of "day care procedure".*
Material And Method: *It is prospective study included 118 patients. Duration of 2 years, May 2004 – May 2006.*
Result: *1. Maximum reporting age is 2 - 4 yars. 2. Incidance in preterm is 39% and 61% in full term babies. 3. Incidance of sex, it is 98% in male 1.69 in female. 4. Incidence common on right side than the left. 5. Successful herniotomy with 1 - 1.5 cm incision in 102 (86.44%). 6. herniotomy mean duration is 12.08 +- 4 min. 7. It is a day care procedure.*
Conculsion: *Single stitch herniotomy with hooking of cord in congenital inguinal hernia made day care procedure successfully and Present study also noted that there is no recurrence.*

I. Introduction

Word hernia derived from the Greek word ''Hernios'' means a bud, a branch or an offshoot, a term used about 1000 years ago. In Latin word hernia means 'a tear or a rupture'. It is very easy to diagnose in old age than pediatric age group. Congenital inguinal hernia is common finding in infants. Presentation is the **inguino- scrotal swelling.** Its pathology is failure of obliteration of patent processus vaginalis and canal of nuck in female. It can be life threatening result in to the loss of testis, an ovary or part of the bowel in case of incarceration and strangulation. Considering significant incidence, in juvenile age and significant recurrence rate has challenge the sense of technical proficiency and creative and innovative skill of most experienced surgeon. Hence in present study taking small incision over the internal ring, gentle hooking of the cord with the help of J hook without disturbing nearby structure makes inguinal hernia single stitch. This technique is day care and relieved the patient from pain, discomfort, and immobilization.

II. Material And Methods

'' Surgery is the ready motion of steady and experienced hands'', Galen.

This study was carried out in department of general surgery, Shri. Guru GovindSing Hospital and Government Medical College Nanded. From May 2004 – May 2006, 2 year prospective study of congenital inguinal hernia this study included 118 patients who visited in OPD of surgery department. All patients were examined clinically for silent features. All relevant investigations were done and advised surgery to all patient and explained method of surgery in their language. Nil orally 6 hr.prior to surgery was advised.

Exclusion Criteria: Acute scrotal swellings & Undescended testis.

Opreative Technique :

- Patient presented on table in supine position.
- Marked the Anterior superior iliac spine and pubic tubercle (Fig. 1).
- Skin crease Incision taken approximately 1-1.5 cm. size (Fig.2).
- External oblique apponeurosiss identified and take the longitudinal incision over it. (Fig.3)

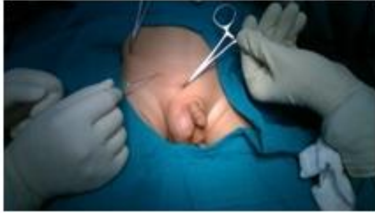


Fig.1 Site of Incision

Fig.2 Insicion

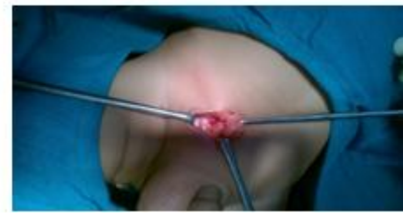


Fig.3 Ext. oblique Appneurosiss

- Care should be taken that superficial ring not to be disturbed in children more than 2 years of age.
- Mosquito artery forcep sliding to hook the cord structure, and lift it up. (Fig.4)
- Longitudinal incision taken over cremasteric tube, and opened it.
- Visualize Pearly white sac easily on superomedial aspect of spermatic cord.
- Sac identified and separated it up to deep ring from cord structures without disturbing other cord structure.(Fig.5)
- Transfixed the sac and high ligation as high as possible towards the deep ring.
- Skin closed with 2-0 mersilk suture material in a single stitch.(Fig.6)
- Band aid dressing applied.

Fig. 4 Hooking of Cord

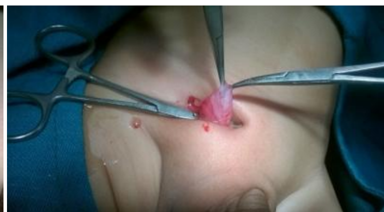


Fig.5 Sac Indentified

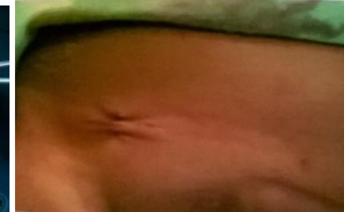
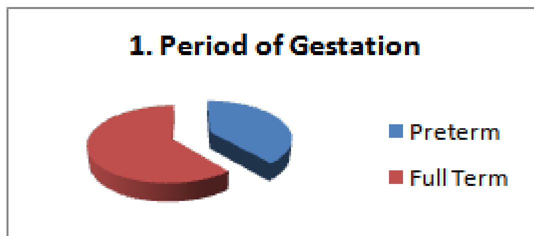
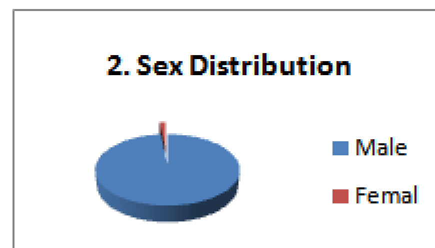
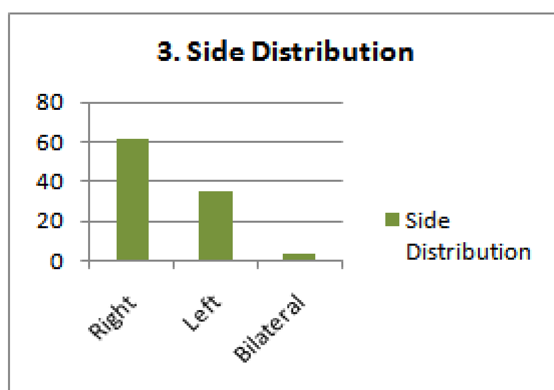


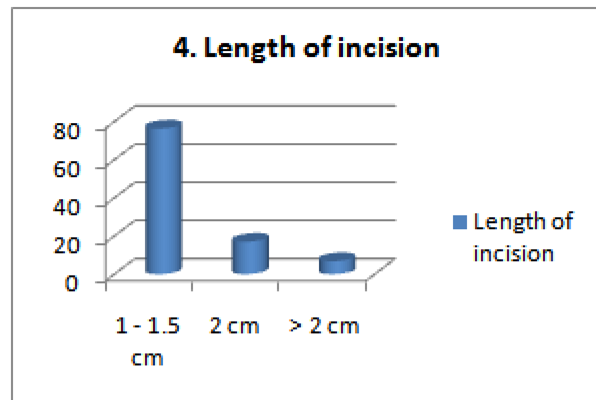
Fig.6 Single Stitch Closure

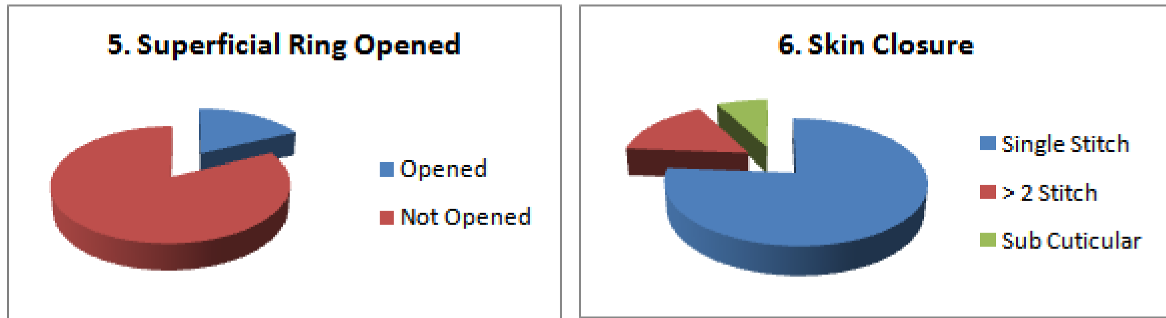
Post Operative: Patients were safely mobilized, feel comfortable and walked within six hours.
Observation:











III. Result

1. Age Distribution :
In the present study, of 118 cases, 50 (42.36%) patients were at age of 2 to 4 years and it was maximum reporting age group.

Age	No. Patients	%
0 – 2	16	13.55
2 – 4	34	28.81
4 – 6	22	18.64
6 – 8	19	16.10
8 -10	10	8.47
10 -12	17	14.40

2. Period of Gestation:
It was observed that 46 (39%) cases were preterm babies and 72 (61%) cases were full term babies. (Chart 1)

3. Sex Distribution :
In the present study out of 118 cases, 116 (98.30%) were male patient and 02 (1.69%) were female patient. (Chart 2)

4. Mode of Presentation :
All patient were presented with history of inguinoscrotal swelling, of which 34 (28.81) cases presented with pain, on examination, swelling was reducible in 97 (82.20%) and irreducible in 21 (17.79%).

5. Side Distribution :
In our study all patient were diagnosed and revealed that of 118 cases 72 (61.01%) patient having right sided congenital inguinal hernia and 41 (34.74%) patient having left side hernia and 05 (4.23%) cases of bilateral hernia.

6. Types of Hernia :
Present study found that among all cases 69 (58.47%) cases were complete congenital inguinal hernia, 23 (19.47%) cases were funicular, 21 (17.79%) were infantile and 05 (4.23%) were encysted hydrocele of cord.

7. Skin crease Incision :
In this study lower most abdominal skin crease were selected.

8. Length of Incision :
Present study minimal incision of length 1 – 1.5 cm were taken for operative procedure and of 118 cases 102 (86.44%) cases of 1 – 1.5 cm incision length. And 16 (13.55%) cases extended more than 2 cm length. (Chart 4)

9. Incision of external oblique apponeurosis :
Among all cases, initially identified external oblique apponeurosis and incision taken over it to exposed cord structure. Integrity of superficial ring were maintained in case of more than two years of age of child it is 97 (82.20%). (Chart 5)

10. High Ligation :
In present study, herniotomy done with high ligation with transfixation of sac to avoid recurrence.

11. External oblique apponeurosis closure :
In Present study, external oblique apponeurosis sutured with 2-0 catgut and reform superficial ring.

12. Skin Closure :
In present study incision of length 1 - 1.5 cm were taken for herniotomy and single stitch suture with mersilk, in 102(86.44%) cases, 2 stitch for 2 cm in 12(10.17%) cases and 4 (3.38 %) cases were subcuticular sutured with 4 - 0 catgut. (Chart 6)

13. Operative Duration :
In this study, mean duration of herniotomy was 12.08 +/- 4 minute.

14. Hospital Stay :
In present study, of 118 cases 91 (77.11%) patient were discharged on a same day of operation, and 27(22.87%) cases were discharged after 24 Hour.

Duration (Hours)	No. of Patients	%
10	91	77.11
24	19	16.10
>24	08	6.77

15. Complication :
Our study noted that very few early and delayed complication like retention of urine, cord edema and Seroma formation.

16. In present study no recurrence were noted.

IV. Disscussion

In the present study, of 118 cases, 50 (42.36%) patient were at age of 2 to 4 years and it was maximum reporting age group. Similar study done by Abantonga 2002 and observe the similar findings. Hence it is concluded that maximum reporting age group is 2 – 4 years.[13]

It was observed that 46 (39%) cases were preterm infant and 72 (61%) cases were full term babies. Similar to our study, Jeffrey (2006) also stated that higher incidence in premature babies.[5] and another study, Harper 1975 reported that congenital inguinal hernia is common problem of premature infants especially weight < 1000 gm at birth.[3]

In the present study out of 118 cases, 116 (98.30%) were male patient and 02 (1.69%) were female patient. Various study given below indicated male : female ratio similar to this study

Male : Female	Author	Year	Ref. No.
10 : 3	Alwell J D	1962	12
10 : 2	Gros & Ladd	1948	2
10 : 1	Montapet	1999	14

Hence it leads to conclude that preponderance of hernia in male.

All patient were presented with history of inguinoscrotal swelling, of which 34 (28.81) cases presented with pain, on examination, swelling was reducible in 97 (82.20%) and irreducible in 21 (17.79%).

In our study all patient diagnosed and revealed that of 118 cases 72 (61.01%) patient having right sided congenital inguinal hernia and 41 (34.74%) patient having left side incidence and 05 (4.23%) cases of bilateral hernia.

Sex	Right (%)	Left (%)	Bilateral	Author	Year	Ref.No.
Male	57.33	20	12.67	Shalaby	2005	16
Male	68	32	5	Manoharan	2005	6
Female	59	20	21	Richard	1958	15

Hence incidence of congenital inguinal hernia common on right side.

Present study found that among all cases 69 (58.47%) cases were complete congenital inguinal hernia, 23 (19.47%) cases were funicular, 21 (17.79%) were infantile and 05 (4.23%) were encysted hydrocele of cord. Nyhus and Condons, Text book of hernia also described the similar types.[17]

In this study lower most abdominal skin crease were selected for incision. Various study also suggested same incision. Thomas (1969). Herniotomy done by skincrease incision. Jin. Zhe Zhang (1993) describes about skin crease.[4] and Farquharson's (2005) says that incision just above pubic tubercle.[1]

In present study minimal incision of length 1 – 1.5 cm were taken for operative procedure and of 118 cases 102 (86.44 %) cases of 1 – 1.5 cm incision length. And 16 (13.55 %) cases extended more than 2 cm length. Various studies noted that Thomes E. (1969), herniotomy with 3 - 4 cm.[11] Jin. Zhe Zhang (1993) herniotomy with 2 -3 cm.[4] Farquharson's (2005) herniotomy with 2 -3 cm.[1] hence incision of length minimal than other study.

Among all cases, initially identified external oblique apponeurosis and incision taken over it to exposed cord structure. Integrity of superficial ring were maintained in case of more than two years age of child it is 97 (82.20%). Other studies also stated the same, Thomas (1969) reported Superficial ring and external oblique not disturbed.[11] and Michael (1997) said opening of external oblique is essential if we need high ligation.[8]

In present study herniotomy done with high ligation with transfixation of sac to avoid recurrence. And other studies also done in same ways. Jin. Zhe Zhang 1993 did herniotomy with high ligation and transfixation and distal sac drops back without treatment.[4]

In Present study, external oblique apponeurosis sutured with 2-0 catgut and reform superficial ring. Jin Zhe Zhang (1993) also describes reconstruction of external ring.[4]

In present study, incision length 1 - 1.5 cm were taken for herniotomy and single stitch of mersilk used in 102 (86.44 %) cases, 2 stitch for 2 cm in 12(10.17 %) cases and in 4(3.38 %) cases were subcuticular sutured with 4 - 0 catgut. Other studies shows similar observation, Thomas (1969) used subcuticular sutures with 6 – 0 white mersilene, and used to keep wound open.[11] Another study by Rob and Smiths (1991) subcuticular sutures taken for skin closure.[9]

In this study mean duration of herniotomy was 12.08 +/- 4 minute. Some other studies also mentioned similar operative time. Gerhard 1995 observed that duration of open herniotomy is 20.4 minute.[18]

In present study, of 118 cases 91 (77.11%) patient were discharged on a same day of operation, and 17(16.10%) cases were discharged after 24 Hour. Various other study also proved that it is day care procedure.[13] F.A. Abantanga 2003 proved that it is day care procedure. Johnson 2006 also described about day care procedure.[7] Present study noted very few early and delayed complication like retention of urine, cord edema and Seroma formation. Whereas various studies have shown lot of complication including accidental orchidectomy and injury to vas. Tiryaki 1998 mentioned about injury to vas (0.2%).[19] and other study by Sowande O.A. 2006 accidently found enterocutanaous scrotal faecal fistula.[10]

In present study no recurrence were noted.

V. Conclusion

Single stitch herniotomy with hooking of cord in congenital inguinal hernia made day care procedure successfully and Present study also noted that there was no recurrence.

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