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A direct Inguinal Hernia Repair - A Case Report

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ABSTRACT

Hernia is defined as an abnormal protrusion of a viscous or a part of a viscous through an opening, artificial or natural with a sac, covering it. Inguinal hernia is the most common hernia (73%) because the muscular anatomy in the inguinal region is weak and also due to the presence of natural weakness like deep ring and cord structures. There are two types of inguinal hernia in which Direct hernia is one which occurs through the posterior wall of the inguinal canal through 'Hesselbach 's triangle'. Acharya Sushruta has also beautifully described about its *Nidana* & *Chikitsa* under group of diseases which originates in the inguinal region viz, *Vruddhi-Upadamsa-Slipada Nidana* & *Chikitsa*. There are 7 types of *Vruddhi Rogas* among which *Antravruddhi* can be correlated to Inguinal hernia and *Mutravruddhi* to Hydrocele, even though originated from the aggravated *Vayu*, they are named due to involvement of organs or matters. Here we are reporting a case of direct inguinal hernia which was treated surgically.

Key words: *Hernia, Antravruddhi, Vruddhi, Ayurveda, Direct Inguinal Hernia, Mesh Repair, Case Report*

INTRODUCTION

Hernia means - 'To bud' or 'to protrude', 'off shoot' (Greek) 'rupture' (Latin). A hernia is defined as an area of weakness or disruption of the fibromuscular tissues of the body wall. Often hernia is also defined as an actual anatomical weakness or defect. Hernia is also defined as an abnormal protrusion of a viscous or a part of a viscous through an opening, artificial or natural with a sac, covering it. Inguinal hernia is the most common hernia (73%) because the muscular anatomy in the inguinal region is weak and also due to the presence of natural weakness like deep ring and cord structures. Indirect is more common than direct.[1]

Hernia comprises of: Covering; Sac; Content. Sac is a diverticulum of peritoneum with mouth, neck, body and fundus. Neck is narrow in indirect sac but wide in direct sac. Body of the sac is thin in infants, children and in indirect sac, but is thick in direct and long-standing hernia. Coverings of the sac are the layers of the abdominal wall through which the sac passes. Contents of Sac are Omentum - Omentocele (Epiplocele), Intestine - Enterocele, Richter's hernia - A portion of circumference of bowel is the content, Urinary bladder may be the content or part of the posterior wall of the sac, cystocele - ovary often with fallopian tube, Meckel's diverticulum-Littre's hernia, Appendix in inguinal hernial sac which is often incarcerated - Amyand's hernia, Fluid: Fluid is secreted from congested bowel or omentum. It may be an infected fluid or ascitic fluid or blood from the strangulated sac.[2]

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ISSN: 2456-3110 CASE REPORT April 2022

According to anatomical classification, Hernia is of two types, Indirect & Direct. Indirect hernia; It comes out through internal ring along with the cord. It is lateral to the inferior epigastric artery. Direct hernia; It occurs through the posterior wall of the inguinal canal through 'Hesselbach 's triangle' (bounded medially by lateral border of rectus muscle, laterally by inferior epigastric artery, below by inguinal ligament). Sac is medial to the inferior epigastric artery.[3]

Chronic cough, Smoking, Straining, Constipation, Heavy work, Previous appendicectomy are the predisposing factors to direct hernia. Malgaigne bulging's; are often seen in these patients on examination, more often than in indirect hernia. They are protrusion of abdominal wall muscle during leg raising test as weak, soft, supple, swellings which signifies poor abdominal muscle tone. It is common in old age, obesity; it indicates that hernia requires mesh repair. Direct hernia rarely descends into the scrotum and strangulation is not as common as in indirect hernia. But in long-standing cases, it can descend down to the scrotum and strangulation can occur.[4]

According to *Sushruta*; Aggravated *Doshas* causes premonitory symptoms like pain in the bladder, waist, scrotum and penis; retention of *Vayu* leading to swelling of the scrotum. The aggravated *Dosha* occupies the *Pahalakoshavahini* (spermatic cords) & causes swelling of *Phalakosh* (scrotal sac) and *Dhamani*, which is called as *Vruddhi* (Scrotal enlargement).[5]

Here is the case detail as described below.

CASE REPORT

A 76-year-old male patient (Reg no - 150298, IP no - 38630) got admitted under Shalya Tantra department of JSS Ayurveda Hospital, Mysuru on 12/01/2022 with complains of protruding mass in the inguinal region accompanied with pain in the last 3 years.

History of Illness

As per the statement of the patient he was apparently healthy before 3 years. He gradually noticed mass along with pain near the inguinal region. Mass comes out while coughing, walking, straining for motion, lifting heavy weight. In the last 1 month the mass has increased in size hence for further management he has approached our hospital.

History of Past Illness

N/K/C/O - DM/HTN/IHD,

K/C/O - COPD on medications in the last 10 years.

H/O surgery for inguinal hernia on right side, 4 years back

Clinical Findings

On Examination: BP - 130/80mmHg, PR - 78 bpm, R.R - 18cpm.

General Examination

Built: Moderate, **Nourishment:** Moderate, **Temp:** Afebrile.

No evidence of Pallor / Icterus / Cyanosis / Clubbing / Oedema / Koilonychia / Lymphadenopathy

Systemic Examination

CNS: Conscious, well oriented to time, place and person,

CVS: S1 S2 heard, no added sounds,

RS: B/L AE+, B/L wheezing ++ heard on all lobes,

P/A: Soft and Non-distended, Tenderness noted at left iliac fossa, P/R examination: Nothing contributory.

Others / Local Examination

Location - Swelling over the left inguinal region. No of swellings - One

On Inspection

Discolouration - Absent, Swelling - Present, Pigmentation - Absent, Scar marks - Absent on left inguinal region, previously operated hernia repair scar mark present on right inguinal region.

On Palpation

Tenderness - Present, Temperature - Normal, Size - 5 to 6cm. Shape - Semi-spherical, Transillumination test - Negative, Fluctuation test - Negative,

ISSN: 2456-3110 CASE REPORT April 2022

Specific examinations of inguinal hernia; Internal ring occlusion test - Positive, Ring invagination test - Positive, Zieman's test - Positive impulse on middle finger, Head or leg rising test - Positive for Malgaigne bulgings.

Investigations (12-01-2022)

- HB% : 13.8gm/dl
- WBC (TC) : 8100 Cells/Cumm
- DC: N : 58, L : 36, E : 03, M : 03
- ESR : 40mm 1st hour
- HIV : Negative
- HBsAg : Negative
- Urine Routine
  - Urine Albumin : Nil
  - Urine Sugar : Nil
  - Pus Cells : 1-2
- RBS : 113mg/dl
- Urea : 23mg/dl
- Creatinine : 1.0mg/dl
- Platelet Count : 3.00 Lakhs/Cumm
- BT : 2.10 min
- CT : 5.10 min
- Blood Group : B positive

USG Abdomen & Pelvis : 08/01/2022

Impression: Grade I Prostatomegaly, Small prostate cyst, Small angiomyolipoma in right kidney, Left sided direct reducible inguinal hernia with loop of small bowel and its mesentery as content.

Treatment/Operative Procedure

Pre-operative

1. Consent for both surgery & anaesthesia taken
2. Fitness for surgery taken from physician
3. Pre-anaesthetic evaluation done
4. Part preparation done
5. Patient was kept NBM, 6 hours prior to surgery
6. Inj T.T 0.5cc /IM/stat & Inj. Xylocaine 0.3cc/SC/stat as test dose given
7. Bowels cleared by giving proctoglysis enema twice 1 hour apart each & 2 hours before surgery

Operative

With all aseptic precaution patient was shifted to operation theatre & spinal anaesthesia given. Patient was placed on supine position, after cleaning & draping skin was incised 1.25cm above & parallel to the medial two-thirds of inguinal ligament. Two layers of superficial fascia (outer Camper's fascia and inner Scarpa's fascia) are incised. Superficial pudendal and superficial epigastric vessels are ligated with catgut or cauterised. External oblique aponeurosis was incised along its long axis parallel to the line of skin incision. Using peanut dissection upper leaf was raised adequately to visualise conjoined tendon and lateral rectus sheath. Lower leaf was reflected downwards to visualise and expose the inguinal ligament. Ilioinguinal nerve was safeguarded which was located in the inguinal canal outside the cord. Cremasteric muscle with its fascia was opened longitudinally as medial and lateral flaps. Genital branch of genitofemoral nerve passes through the cord structures. Care should be taken not to injure it. Cord structures are dissected. Sac lying anterior and lateral to cord was identified and was pearly white in colour. Dissection was usually started from the fundus and extended towards the neck which is identified by the extra-peritoneal fat. The neck was narrow and was lateral to inferior epigastric artery. High dissection beyond the deep ring was done. Sac was opened at the fundus. Finger was passed to release any adhesions. Sac was twisted so as to prevent the content from coming back. It was transfixed using absorbable suture material (chromic catgut 2-0 or vicryl) and is excised (redundant sac) distally. Here it completes the procedure of herniotomy.

Then we did Lichtenstein hernia repair (hernioplasty). In this suitable sized mesh was selected. Mesh was placed deep to the cord structures, below it was sutured using continuous non-absorbable polypropylene sutures, medially it should overlap 2-

ISSN: 2456-3110 **CASE REPORT** April 2022

2.5cm over the pubic tubercle. Suture should be ended laterally at the level of internal ring. Laterally both leaflets are spread up to anterior superior iliac spine for 6 cm. Above and medially mesh was fixed to conjoint tendon using interrupted non-absorbable sutures. Care should be taken to avoid taking bites from the iliohypogastric nerve. Cord was placed on the mesh and external oblique was sutured using same suture material or delayed absorbable suture. Subcutaneous tissue and skin were closed.

Post-operative

1. Foley's catheterisation done to ease the patient. De-catheterisation done next day morning.
2. NBM to be continued for another 4 hours post-operatively & then relieved by giving sips of water followed by Ganji, after appreciation of bowel sounds.
3. Foot end elevation advised for 12 hours.
4. Advised alternate day dressing.
5. Discharged after 48 hours of surgery.
6. Sutures removed on 10th after surgery.

Complications of open hernia repair[6]

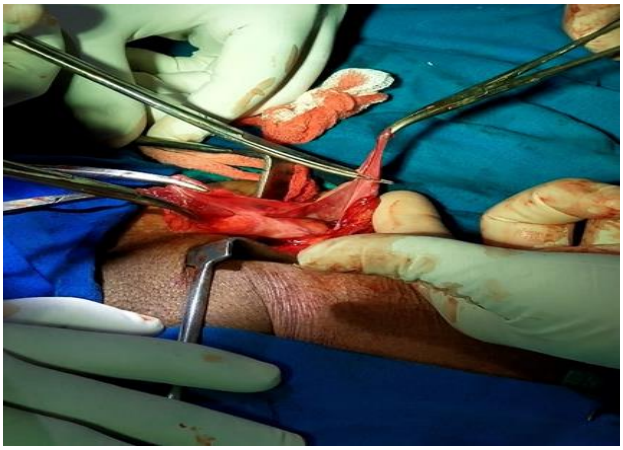
1. Haemorrhage, haematoma, seroma, haematocele.
2. Infection, Osteitis pubis.
3. Post-herniotomy hydrocele, lymphocele.
4. Neuralgia (15%) – Hyperaesthesia over the medial side of inguinal canal due to injury to iliohypogastric nerve.
5. Recurrence 10-15% in modified Bassini; 1-5% only in other types.
6. Injury to urinary bladder, bowel, ileus.
7. Testicular atrophy due to thrombosis of pampiniform plexus of veins, Penile oedema - rare

Complications of Hernioplasty (Mesh repair)[7]

1. Infection
2. Mesh extrusion
3. Foreign body reaction
4. Mesh inguinodynia
5. Mesh erosion into bladder, bowel, or vessels can occur occasionally.

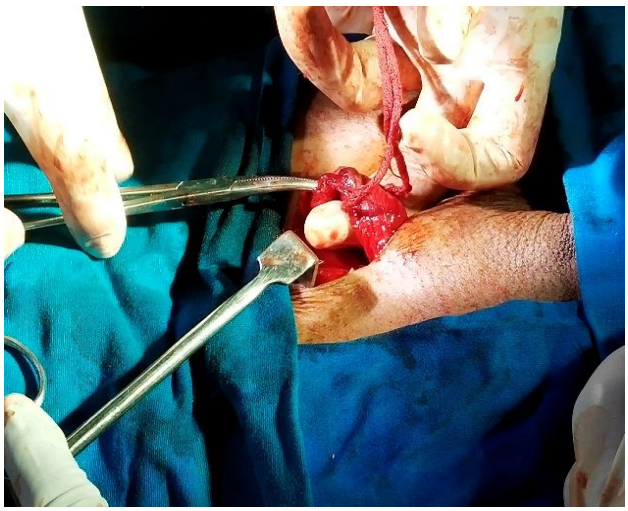
Before Surgery

During Spinal Anaesthesia

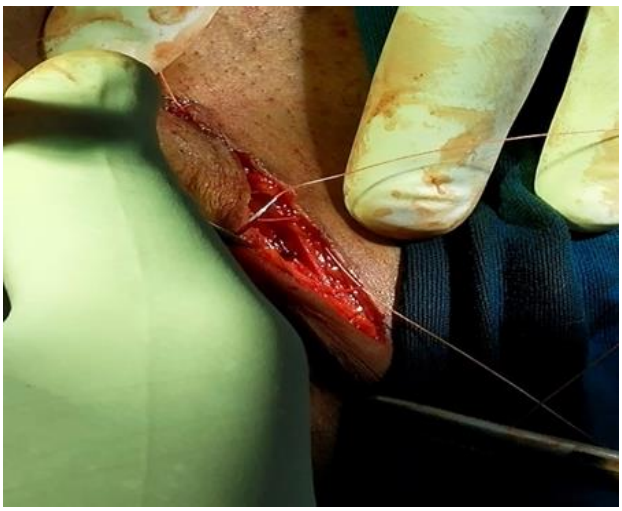


During Surgery

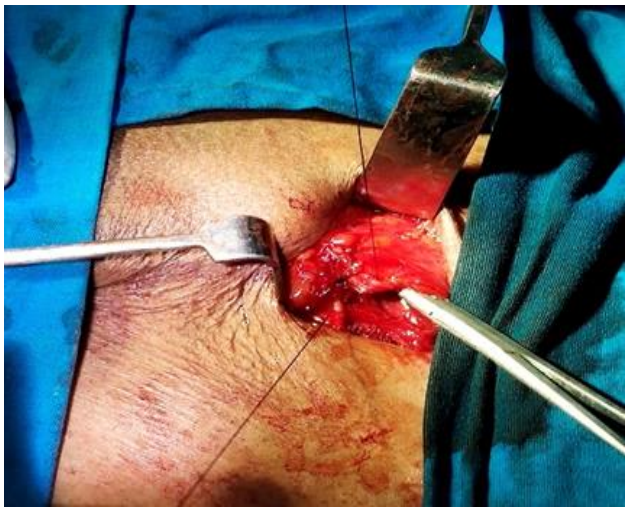
ISSN: 2456-3110 **CASE REPORT** April 2022



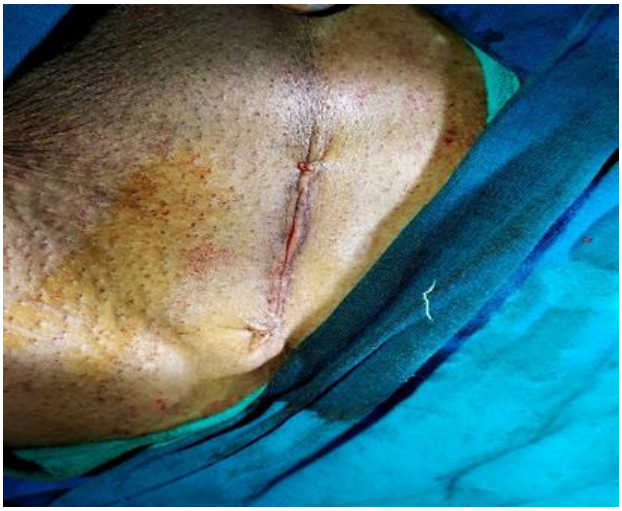
Safeguarding Cord Structures



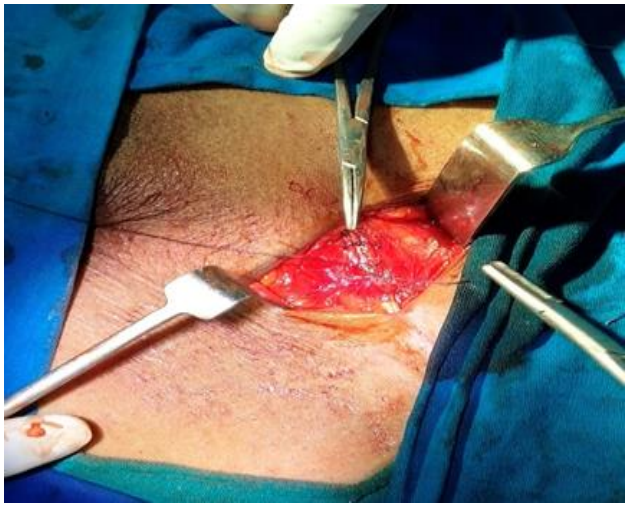
Subcuticular Suturing



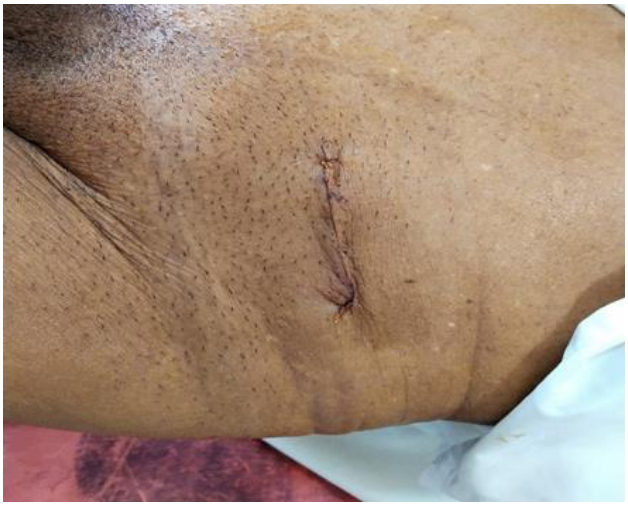
Closing the fascia with sutures



After complete suturing



Completely closed internal layers by sutures



During Follow-up After 1 week

ISSN: 2456-3110 CASE REPORT April 2022

After removing sutures completely on 10th day during follow-up

Treatment Given: Under the advice of consultant physician

1. Inj. Taxim 1gm IV/ 12th hourly for 3 days
2. Inj. Tramadol 2ml/ IM sos for 3 days

Oral Medications

1. Tab. *Chitrakadi Vati* 1-0-1 with water before food
2. Tab. *Swasakutara Rasa* 1-0-1 with water after food
3. Syp. Spasma 20ml-20ml-20ml with water after food
4. Tab. Abiflu 100mg 1-0-1 with water after food
5. *Dashamoolarishta* 20ml-0-20ml with water after food
6. *Triphala Guggulu* 1-0-1 with water after food
7. *Gandhaka Rasayana* 1-0-1 with water after food

Condition at the time of discharge

1. All vitals were normal,
2. Patient's general condition was fair,
3. No any complaints related to surgery,
4. Patient was haemodynamically stable.

Advice on discharge

1. Tab. *Chitrakadi Vati* 1-0-1 with water before food for 15 days.
2. Tab. *Swasakutara Rasa* 1-0-1 with water after food for 15 days.
3. Syp. Spasma 20ml-20ml-20ml with water after food for 15 days.
4. Tab. Abiflu 100mg 1-0-1 with water after food for 15 days.
5. *Dashamoolarishta* 20ml-0-20ml with water after food for 15 days.
6. *Triphala Guggulu* 1-0-1 with water after food for 15 days.
7. *Gandhaka Rasayana* 1-0-1 with water after food for 15 days.
8. Avoid exposing to precipitating causes.

Review: Alternate day for dressing/SOS/on 10th day after surgery for suture removal.

DISCUSSION

Precipitating causes should be treated or controlled first like treating asthma, tuberculosis, bronchitis, chronic cough, stopping smoking, treating enlarged prostate by TURP (transurethral resection of prostate), etc. TURP and hernioplasty can be combined together. In this case also we noticed that, patient was having history of COPD since 10years. Because long run history caused hernia on both sides first on right then on left side.

In treatment of Direct Hernia; usually direct sac is not opened. Care should be taken on the medial aspect due to the presence of bladder (bladder should be emptied before surgery). Genital branch of genitofemoral nerve passes through cord structures. Care should be taken not to injure it. Ilioinguinal nerve is safeguarded which is located in the inguinal canal outside the cord. Ideally hernioplasty (mesh repair) is done. In case of bilateral hernia, mesh repair can be done on both sides together. Laparoscopic approach (TEP) or suprapubic approach may be better in bilateral cases.

Recurrence rate has reduced significantly by prosthetic mesh repair. But incidence of mesh inguinodynia has increased due to entrapment of ilioinguinal or iliohypogastric nerves in the mesh. Even though it is a

ISSN: 2456-3110 CASE REPORT April 2022

commonly done procedure at present for inguinal hernia, in adolescents whether it should be used or not is a debate. In children, it is not used. It is not done in strangulated hernia or in presence of sepsis where only tissue repair is done.[8]

CONCLUSION

Treatment for inguinal hernia is always surgery. However, asymptomatic direct hernia patients with can wait without opting for any surgical intervention. Acharya Sushruta was capable enough to explain the *Nidana*, *Samprapti* & *Chikitsa* of Inguinal hernia as under topic "*Antra-Vruddhi'*. He also justified the reason behind naming *Antra-Vruddhi* & *Mutra-Vruddhi* is because they are named based on their contents. Other *Vruddhi Rogas* can be correlated to the swellings which occurs in this region. Treatment for them before their suppuration is *Raktamokshana* & *Doshaghna Chikitsa* according the *Dosha* involved, once the swelling is suppurated, he had advised incision & drainage. Thus, here by considering all these things we can proudly say that *Sushruta* tried his level best to explain hernia completely. It is very important step before going for the surgery of hernia, we have to treat the cause first.

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