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Research Article

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## Experience of intussusception at a tertiary care hospital: A prospective study

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### Abstract

**Introduction:** Intussusception of the bowel is defined as the telescoping of a proximal segment of the gastrointestinal tract within the lumen of the adjacent segment. This condition is frequent in children and presents with the classic triad of cramping abdominal pain, bloody diarrhea and a palpable tender mass. However, bowel intussusception in adults is considered a rare condition, accounting for 5% of all cases of intussusceptions and almost 1%-5% of bowel obstruction. Eight to twenty percent of cases are idiopathic, without a lead point lesion. Secondary intussusception is caused by organic lesions, such as inflammatory bowel disease, postoperative adhesions, Meckel's diverticulum, benign and malignant lesions, metastatic neoplasms or even iatrogenically, due to the presence of intestinal tubes, jejunostomy feeding tubes or after gastric surgery. Computed tomography is the most sensitive diagnostic modality and can distinguish between intussusceptions with and without a lead point. Surgery is the definitive treatment of adult intussusceptions. Formal bowel resection with oncological principles is followed for every case where a malignancy is suspected. Reduction of the intussuscepted bowel is considered safe for benign lesions in order to limit the extent of resection or to avoid the short bowel syndrome in certain circumstances.

**Methods:** Study of 13 patients admitted between 1<sup>ST</sup> JUNE 2012 and 31<sup>ST</sup> MAY 2014 At DR.B R Ambedkar Medical College.

**Results:** Of 13 cases, 2 cases underwent hydrostatic reduction one case failed and underwent emergency laparotomy and resection anastomosis, 6 cases underwent operative reduction, 4 cases underwent resection anastomosis, 1 case of PJS underwent operative reduction and polypectomy, 1 case of PJS underwent resection anastomosis and polypectomy, 1 case of PJS refused surgery and expired.

**Conclusion:** Though hydrostatic /pneumatic reduction is the mainstay of treatment in developed countries in our country most cases are diagnosed and referred later than 72hrs Hence, non-operative reduction may not be always be feasible in most of the patients in our setup and number of patients requiring resection and anastomosis, is high. In older patients of intussusception pathological lead points should be suspected.

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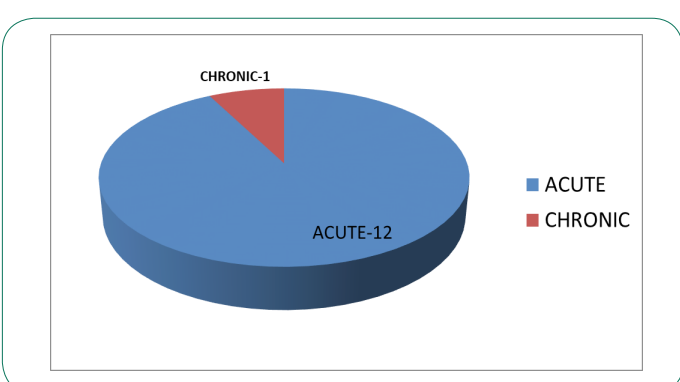
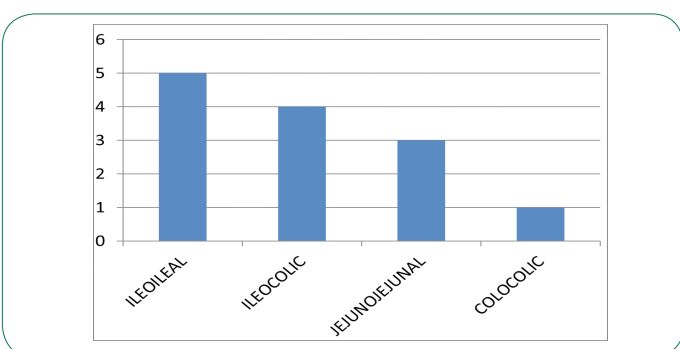
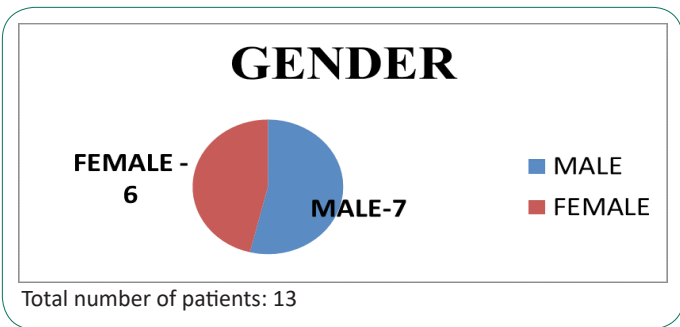
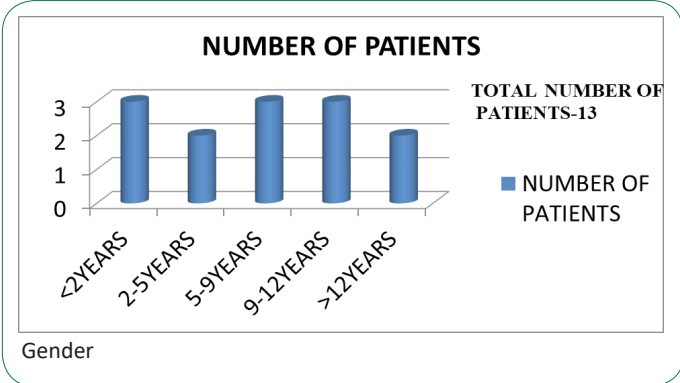
**Methodology**

**Methods of collection of data:** Study of 13 patients admitted between 1<sup>ST</sup> JUNE 2012 and 31<sup>ST</sup> MAY 2014 at DR.B R Ambedkar Medical College.

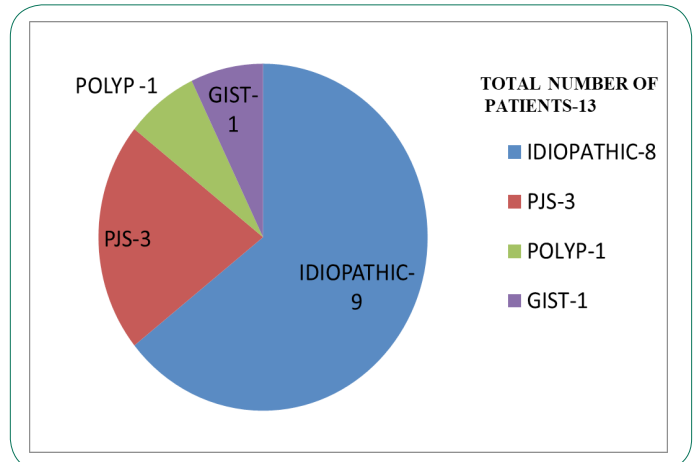
**Inclusion criteria:** All cases of intussusception of all ages and gender presented to our hospital including those who refused surgery.

**Results**

**Case details**



**Etiology:**



**Evaluation:**

- Clinical Examination
- Erect X –Ray Abdomen
- Usg Abdomen
- Cect Abdomen
- Clinical Examination
- Erect X –Ray Abdomen
- Usg Abdomen
- Cect Abdomen

Clinical Features	Number Of Pts	Percentage
Abdominal pain	13	100%
Abdominal mass	5	38%
“Red currant jelly” stools	4	30%
Vomiting	7	53%
Abdominal distention	4	30%
Hypovolemic shock	2	15%
Pallor	4	30%

**Red currant jelly stools:**



### Abdominal distention:



### Erect x-ray abdomen:

Erect x-ray abdomen was done to look for free air under diaphragm and to look for obstruction



### Ultrasonography:

- All patients underwent USG
- Doppler was used to determine bowel ischemia; guides reduction decisions
- Ultrasonography was diagnostic in 93% of our cases



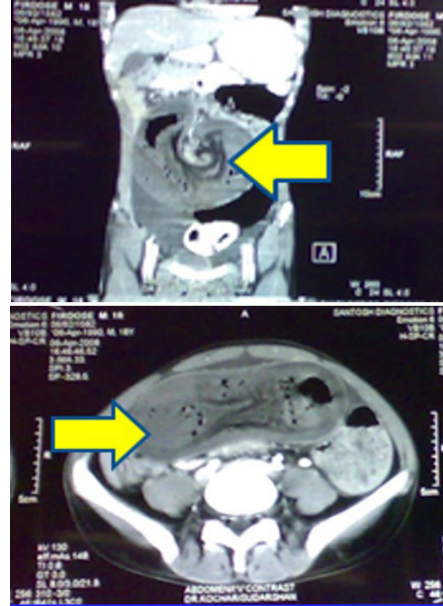
### Target sign:



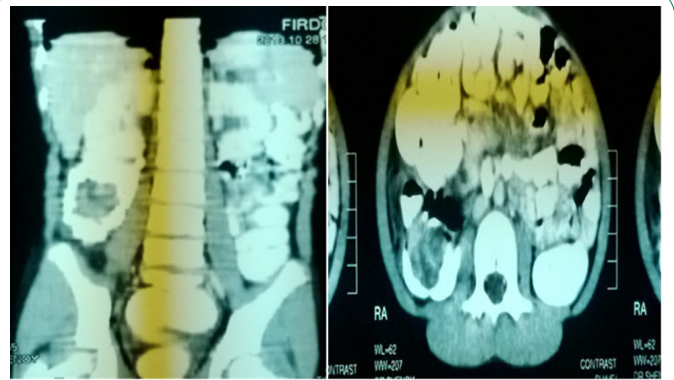
### Computer tomography:

- CT was done in 2 of our cases
- 1 case of PEUTZ JEGHERS SYNDROME
- 1 case was of chronic intussusception with benign polyp as lead point in ascending colon

### Peutz Jeghers Syndrome:



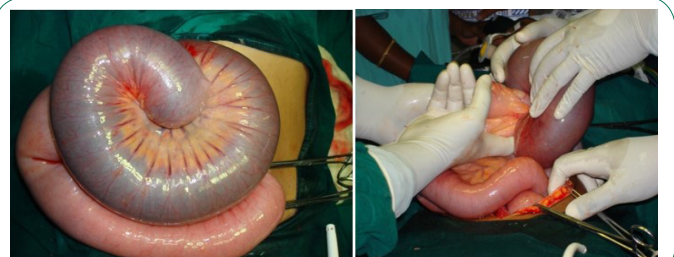
### Chronic intussusception with benign polyp:



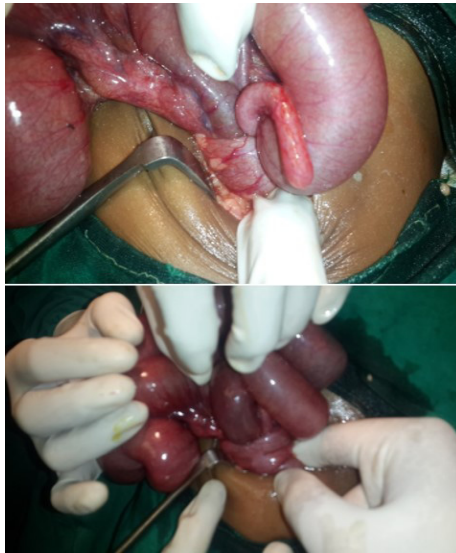
### Management:

- HYDROSTATIC SALINE REDUCTION:
- Patients of age <3 years presented with 72 hrs of duration underwent hydrostatic saline reduction under USG guidance.
- 2 cases- 1case failed and underwent emergency laparotomy and resection anastomosis.

### Operative reduction of ileoileal intussusception:



**Operative reduction of ileocolic intussusception:**



**Resection and anastomosis:**



**Peutz jehgers syndrome:**

- Our case report-3 cases (family)
- 2 male-11,50 yrs (father)
- 1 female-8 years

**PEUTZ JEGHERS SYNDROME (FAMILY)**

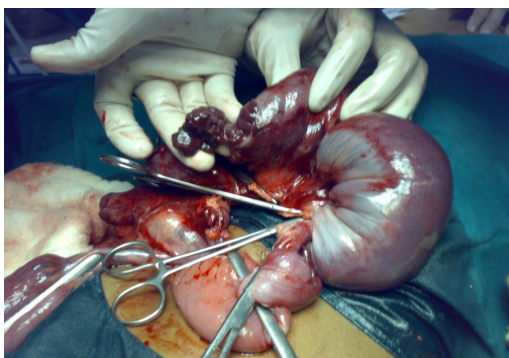
Vital Signs	In shock	WNL	shock
Muco-cutaneous Jn	Hyperpigmented spots on both the lips & buccal mucosa	Hyperpigmented spots present over buccal mucosa	Hyperpigmented spots present over buccal mucosa
Per Abdomen	Tender mass in the umbilical region with abdominal distension	Tender mass in right hypochondrium	abdominal distension
Per rectal	Red currant jelly stools	WNL	WNL
USG	Jejunioileal intussusception	Ileocolic intussusception	Ileocolic intussusception
Xray Abdomen	Multiple air fluid levels	NOT DONE	Multiple air fluid levels
CT Scan Abdomen	Jejunioileal intussusception	NOT DONE	NOT DONE
management	Operative reduction and Resection anastomosis	Operative reduction and polypectomy through enterotomy	refused

**Muco-cutaneous pigmentation in peutz jehgers syndrome:**



**Peutz jehgers syndrome - per operative findings in the child**

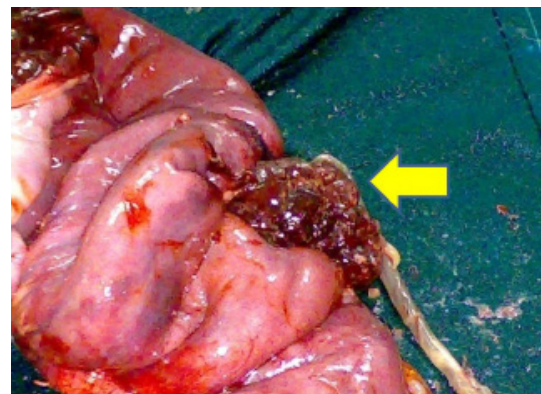
- Jejuno-ileal intussusception with multiple polyps in the jejunum.
- Gangrene of the bowel seen.



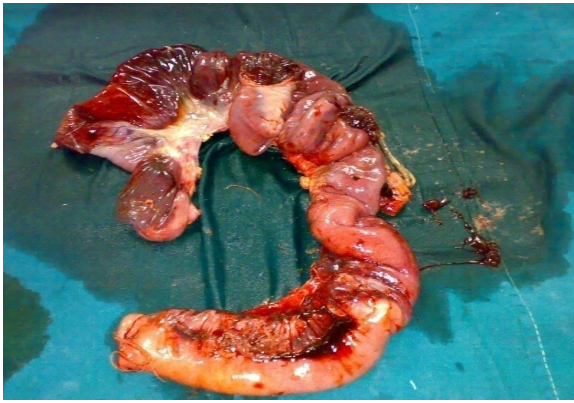
**Multiple polyps resected from the viable bowel through enterotomy:**



**Arrow showing the polyp:**



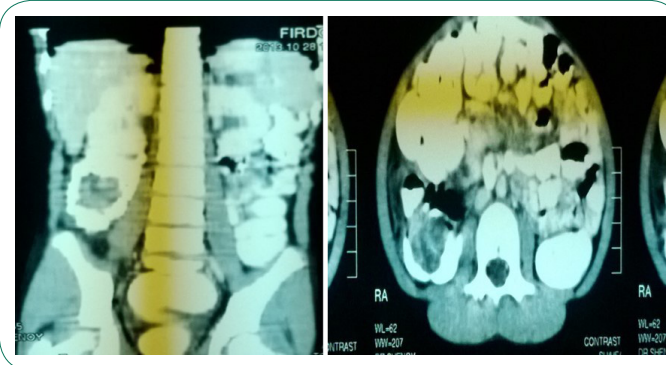
**Resected segment with multiple polyps:**



**Chronic intussusception:**

- 12 years old female patient presented with chronic abdominal pain since 6 months.
- USG ABDOMEN-WNL.
- CT ABDOMEN.

**Chronic intussusception with benign polyp**



**Polyp in chronic intussusception:**



**Our results:**

- Of 13 cases, 2 cases underwent hydrostatic reduction one case failed and underwent emergency laparotomy and resection anastomosis.
- 6 cases underwent operative reduction.
- 4 cases underwent resection anastomosis.
- 1 case of PJS underwent operative reduction and polypectomy.
- 1 case of PJS underwent resection anastomosis and polypectomy.
- 1 case of PJS refused surgery and expired.

13 Cases	Age and Sex	Type and Management
1	6 months/F	Ileocolic -Oper Reduction
2	6 months/F	Ileocolic -Failed Hydrostatic Reduction –Oper Redcution &Resection Anastomosis
3	9 months/M	Ileoileal-Oper Reduction
4	3 years/M	Ileocolic-Oper Reduction
5	4 years/M	Ileocolic- Hydrostatic Reduction
6	5 years/M	Ileoileal-Oper Reduction
7	8 years/M	Ileoileal-Oper Reduction
8	8 years/F	Jejunojejunal-Oper Reduction & Polypectomy And Enterotomy
9	9 years/M	Jejunojejunal-Oper Reduction
10	11 years/M	Jejunojejunal/Pjs-Oper Reduction & Resection Anastomosis And Polypectomy
11	12 years/F	Chronic Intussusception With Polyp-Resection Anastomosis
12	50 years	Jejunojejunal/Pjs-Refused Surgery And Expired
13	52 years	Colocolic Intussusception/Gist-Resection Anastomosis

**Discussion:**

**Etiologies of intussusception:**

**Idiopathic:**

- no defined lead point
- Association with viral illness (adenovirus)
- Hypertrophy of lymphoid tissue

**Recognizable cause for lead point:**

- Meckel’s diverticulum
- Intestinal polyp
- Enteric duplication
- Lymphoma
- Intramural hematoma

- Henoch-Schönlein purpura

**Clinical presentation: Variable**

- Classic Triad: abdominal pain, currant jelly stool, palpable abdominal mass (<50%).

**Complications:**

- Typically do not occur within the first 24 hrs...
- Bowel obstruction
- Intestinal ischemia
- Perforation
- Shock
- Sepsis
- Dehydration

Thus we have a window of opportunity in which to treat by hydrostatic or pneumatic reduction procedure and avoid surgery.

**Screening tools:**

**Abdominal radiograph**

- Screen for other differential diagnosis and free air
- 45% sensitivity

**Abdominal sonography**

- Diagnostic accuracy near 100%, evaluation of reducibility, lead point, post reduction, ischemia
- Abdominal CT scan
- Accuracy approaching 100%; especially good for lead points
- High cost, risk of radiation, and risk of sedation in children make it unpractical

**Abdominal ultrasound:**

- Replaced abdominal radiograph as primary screening modality
- Sensitivity 98 -100%; specificity 88 -100%
- Appearance: outer hypoechoic region surrounding an echogenic center or multiple concentric rings
- Use Doppler to determine bowel ischemia; guides reduction decisions
- Guide hydrostatic and pneumatic reduction

**Reduction procedures:**

- Barium enema: previous standard for Dx and reduction
- Risk of barium :peritonitis, infection, adhesions, radiation exposure with fluoroscopy, only see lumen
- US-guided Hydrostatic reduction No radiation, good visualization of intussusception & lead points
- Need sonographer
- Pneumatic reduction with fluoroscopic guidance

- Quick, safe, clean (less fecal spillage), cheap
- Radiation exposure, cannot detect lead points well, only see intraluminal content
- US-guided Pneumatic reduction
- No radiation, confirm dx, highest successful reduction rate (92%), quick and clean, can see lead points well (but not all)
- Air blocks US beam; difficult to see ileocecal valve and residual intussusceptions

**Contraindications to reduction procedures:**

- Dehydration
- Peritonitis
- Shock
- Sepsis
- Free air on radiograph
- Stabilize then treat surgically

**Complications of reduction:**

- Perforation rate of 0.8%
- Recurrence -10%
- 50% will occur within 48 hrs
- Repeat enemas are safe and effective

**Reduction guidelines**

- Rule of Three's for Barium
- 3 attempts
- 3 min duration
- Liquid enema bag 3 feet above fluoroscopy table (5 feet if using water-soluble contrast)
- Air Enema Ensure maximal pressures <120 mm Hg at rest

**Success of reduction depend On...**

- Short duration of symptoms (<24-48 hrs)
- Adequate hydration
- Age (older than 3 months)
- Absence of small-bowel obstruction
- Absence of trapped intra peritoneal fluid
- Absence of enlarged lymph nodes in the intussusceptum
- Adequate blood flow
- Location other than the rectum (rectum only 25% success)

**Peutz-jeghers syndrome**

- PJS is a rare familial disease with a 4 fold increased risk of intestinal and extra intestinal malignancies.
- PJS presenting as intussusception though common in children is rare in adults representing only 1% of bowel obstruction.

- Mucocutaneous pigmentations caused by melanin aggregation is seen in 93% of patients in infancy with the pigmentation fading with age.
- Small bowel polyps can reach up to 100s in number.
- Lack of adequate follow up and cancer surveillance is a potential pitfall
- Every 1<sup>st</sup> degree relative of PJS patient should be screened for polyps.
- Genetic counselling is recommended for patients and their relatives.
- Morbidity includes small intestinal obstruction and intussusception (43%), abdominal pain(23%), hematochezia(14%).
- Refrain from excessive resection of the bowel as PJS patients may be subjected for repeated laparotomies & resection anastomosis due to intussusception.
- Polyps found intraoperatively to be removed by enterotomy

### Conclusion

- Though hydrostatic /pneumatic reduction is the mainstay of treatment in developed countries, in our country most cases are diagnosed and referred later than 72hrs
- Hence, non-operative reduction may not be always be feasible in most of the patients in our setup and number of patients requiring resection and anastomosis, is high
- In older patients of intussusception pathological lead points should be suspected

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