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### RESEARCH ARTICLE

#### OUTCOME OF OBSTRUCTED INGUINAL HERNIA COMPLICATED WITH SMALL BOWEL OBSTRUCTION, ASPIRATION, SEVERE RESPIRATORY SEPSIS AND CRITICAL ILLNESS POLYNEUROPATHY IN CO MORBID PATIENT

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#### Manuscript Info

#### Abstract

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#### Introduction:-

Inguinal hernias are common and can occasionally contain unusual contents. We would hereby like to report a patient that we encountered who had an obstructed inguinal hernia with complication [1].

#### Presentation of case:

A male of 68 years old visited the ED with periumbilical pain without distention or constipation or vomiting.

He is having a lot of co morbidities (IHD, COPD, Renal impairment), Discharged upon request after he received symptomatic treatment. After 7 hours, he came back with constipation and pain increased in severity with pain at left small inguinal hernia (chronic) and there was vomiting (bilious), His x ray showed multiple air fluid level, He refused to stay for CT abdomen and came back again after few hours.

The CT scan showed incarcerated obstructed left inguinal hernia (feature of small bowel obstruction) (figures 1,2,3)

We started optimization of the patient, MDT and ICU backup. We tried Gentle reduction of hernia by manual reduction, analgesia and even by elevating part of the body.

We prepared the patient for emergency surgery and Intra operative findings were of incarcerated obstructed hernia, dusky with dense adhesions. Figures 4,5

Aspiration was ocured while intubation as thoat was full of secretion. We performed adhesiolysis and reduction after confirmed the viability and return to normal color with darn repair.

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We kept him intubated as he was having co2 retention and aspirated while intubation, in spite suction was done from throat and later from ETT. Empirical antibiotics were given and escalated in the ICU.

Culture was taken from ETT and blood.

His blood test showed severe elevation in inflammatory markers especially the procalcitonin (highest level 291.2) and CRP as seen in attached blood tests. Table 1

His blood pressure was high and adjusted during ICU admission, his microbiology showed heavy growth from ... ECOLI & KLEBSIELLA

He remained intubated for 6 days, blood tests improved slowly and his clinical assessment showed generalized weakness of upper & lower limbs

His CT brain did not show any features of stroke or brain insult.

We started physiotherapy started and follow up markers were repeated during his admission.

Finally, his condition improved and he is on rehabilitation phase.

Component Latest Ref Rng& Units	7/1/2024	7/1/2024	9/1/2024	10/1/2024	
	00:06	06:35	05:47	04:33	
WBC 3.6 - 11.0 10 <sup>3</sup> /uL	COUNT	1.7 (L)	2.9 (L)	12.3 (H)	13.2 (H)

Component Latest Ref Rng& Units	11/1/2024	12/1/2024	12/1/2024	13/1/2024	
	05:15	00:36	04:30	05:01	
WBC 3.6 - 11.0 10 <sup>3</sup> /uL	COUNT	13.2 (H)	14.3 (H)	13.9 (H)	15.5 (H)

Component Latest Ref Rng& Units	14/1/2024	15/1/2024	
	04:32	06:14	
WBC 3.6 - 11.0 10 <sup>3</sup> /uL	COUNT	19.4 (H)	14.6 (H)

Component Latest Ref Rng& Units	6/1/2024	7/1/2024	7/1/2024	8/1/2024	9/1/2024	
	01:04	00:06	06:04	05:15	05:47	
C-Reactive <5.0 mg/L	Protein	4.7	22.6 (H)	97.7 (H)	489.2 (H)	575.9 (H)

Component Latest Ref Rng& Units	10/1/2024	11/1/2024	12/1/2024	13/1/2024	
	04:33	05:15	04:27	05:01	
C-Reactive <5.0 mg/L	Protein	323.3 (H)	179.9 (H)	102.3 (H)	113.5 (H)

Component Latest Ref Rng& Units	1/6/2022	7/1/2024	7/1/2024	8/1/2024
	18:56	00:06	06:04	05:15
Procalcitonin <0.05 ng/mL (PCT)	0.05 (H)	1.28 (H)	291.20 (H)	189.92 (H)

Component Latest Ref Rng& Units	9/1/2024	10/1/2024	11/1/2024	12/1/2024
	05:47	04:33	05:15	04:27
Procalcitonin(PCT) <0.05 ng/mL	119.32 (H)	64.09 (H)	30.73 (H)	16.56 (H)

Component Latest Ref Rng& Units	13/1/2024	15/1/2024
	05:01	06:14
Procalcitonin(PCT) <0.05 ng/mL	8.36 (H)	2.36 (H)

**Table 1:-** Blood tests showing raised procalcitonin and CRP inside ICU.

**Respiratory Culture-Aerobic and Gram Stain:(CARBAPENAMASE PRODUCER) ESCHERICHIA COLI (HEAVY GROWTH)**

**X ray abdomen:**

**Findings**

1. Dilated central abdominal small bowel loops showing multiple central long air/fluid levels.
2. No evidence of free air under domes of diaphragm.
3. No evidence of pneumoperitoneum.
4. No abnormal radio opaque density is seen in the abdomen.
5. Visualized bones appear normal

Impression (conclusion or diagnosis)

Signs of small bowel obstruction for CT correlation.

**CT abdomen with contrast: pre operative**

Signs of small bowel obstruction secondary to incarcerated left oblique inguinal hernia, mild abdomen pelvic free fluid.

Bilateral renal simple cortical cysts.Signs of gastro esophageal reflux. Mild hepatomegaly

**Post operative CT angiogram:**

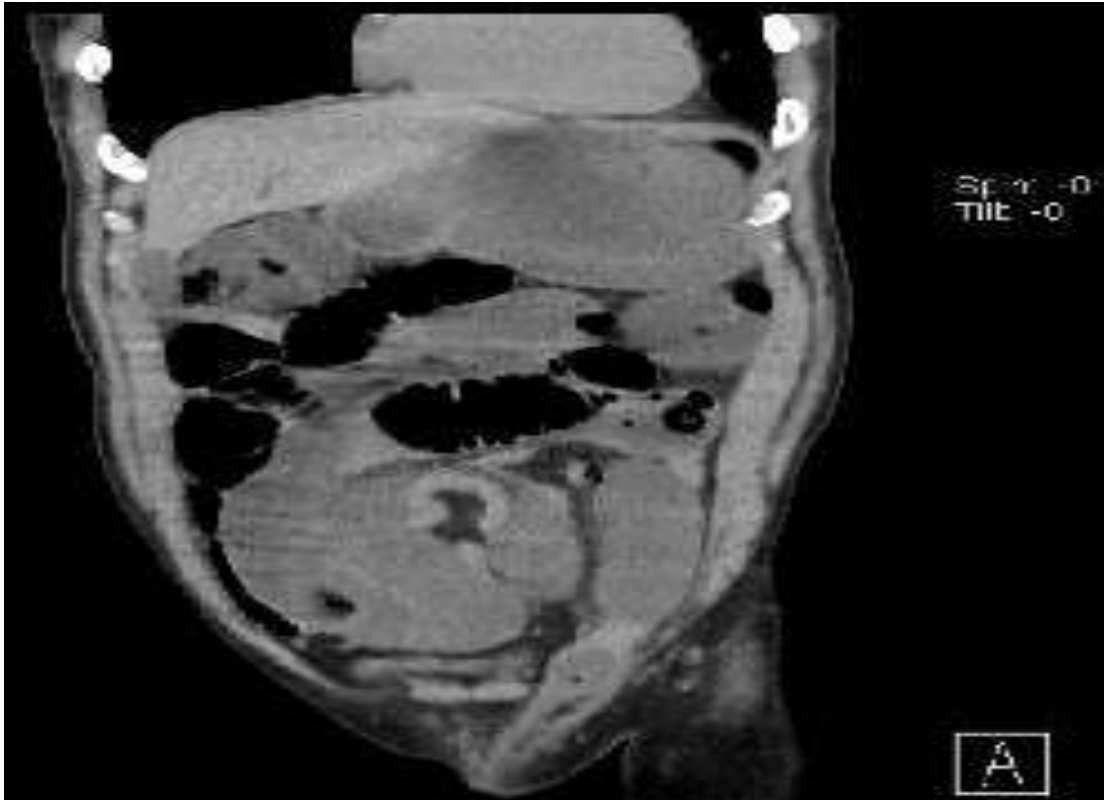
Was done after 2 weeks showed residual pneumonia ( figures6,7)



**Figure 1:-** CT abdomen Dilated small bowel mainly jejunal loops noted along the whole abdomen showing multiple long air/fluid levels secondary to a herniated small bowel loop noted along the left inguinal canal via internal inguinal ring with incarcerated bowel loop.



**Figure 2:-** CT abdomen and pelvis showed Left oblique inguinal hernia.



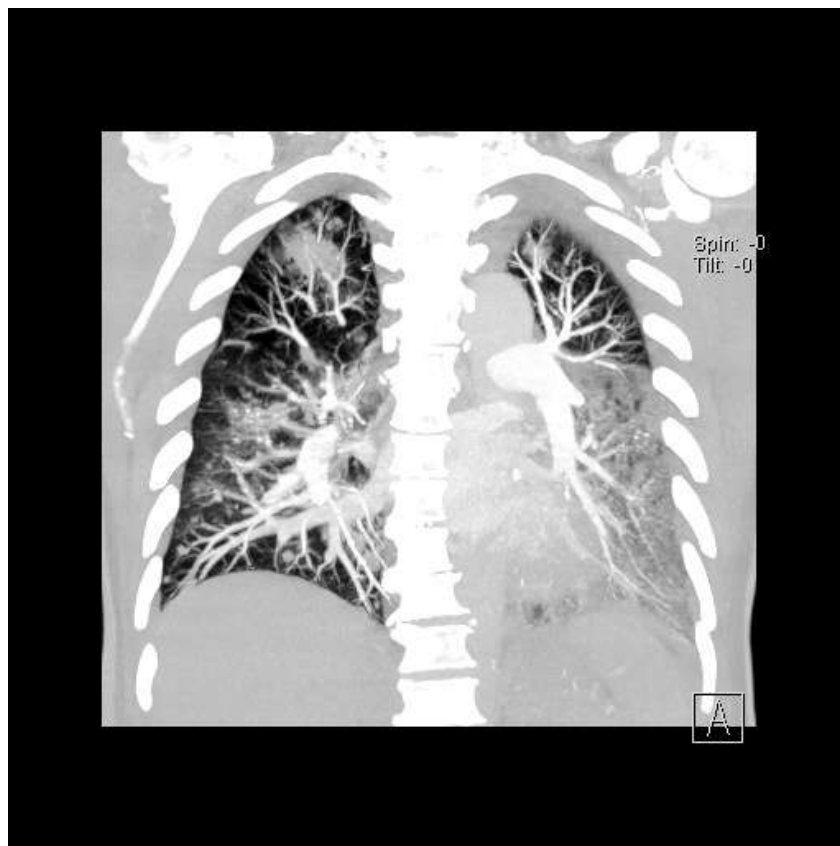
**Figure 3:-**Incarcerated left oblique inguinal hernia.



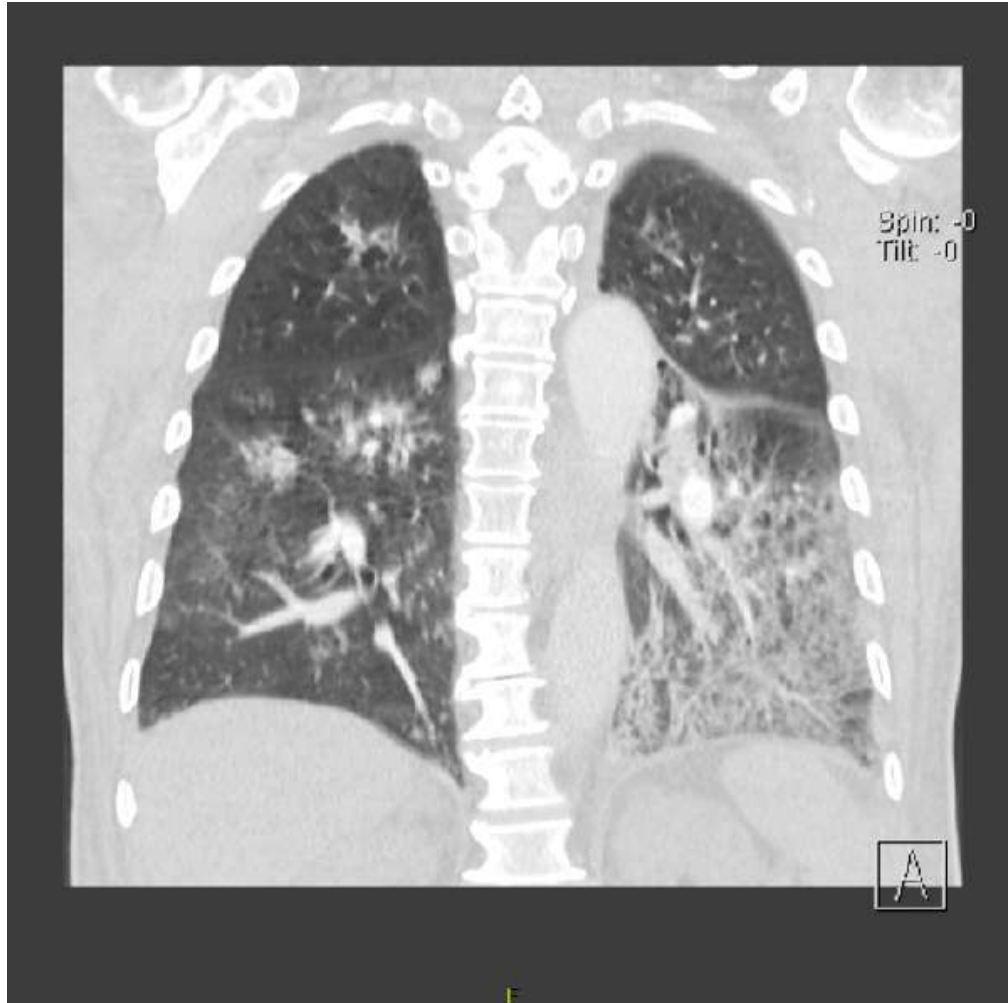
**Figure 4:-** Intra operative findings: dusky small loop, incarcerated and adherent to external inguinal ring.



**Figure 5:-**The incarcerated small bowel loop returned to normal color and viable after release from adhesions and warm gauze were applied.



**Figure 6:-** CT angio showed Residual pneumonic changes.



**Figure 7:-** CT angio, another photo for residual pneumonia.

### Case Discussion:-

Our patient who presented with obstructed inguinal hernia and already having recent cardiac stent with a lot of co morbidities like Age, HTN, nephropathy, COPD and past history of smoking experienced critical and serious complication before and after surgery [2]. However, he recovered from high risk condition and high chance of mortality [3]. We address two main issues: he developed severe respiratory pneumonia that resolved with antibiotics, supportive intensive care, inotropes [6,7,9].

Later after extubating the patient, we found that he is having feature of critical illness neuropathy based on his upper and lower neurological assessment [4,5].

**Peri-operative aspiration** can happen and will result in high mortality and morbidity [8].

The first step in successful management of an intraoperative aspiration is the immediate recognition of gastric content in the oropharynx or the airways. Additional signs of potential aspiration include persistent hypoxia, high airway pressures, bronchospasm, and abnormal breath sounds following intubation.

**Critical illness polyneuropathy** can be caused A definite diagnosis of critical illness polyneuropathy requires that the following criteria be met:

- \* The critically ill patient develops limb weakness or difficulty in weaning, after non-neuromuscular causes such as heart and lung diseases have been excluded;
- \* electromyography shows axonal motor and sensory polyneuropathy;

\* absent decremental response to repetitive nerve stimulation. Subsequently, a diagnostic flowchart for critical illness polyneuropathy and myopathy has been proposed by Latronico and Bolton[10].

Regards his high inflammatory septic markers, he was having variety of causes for that elevation like, non-infectious causes; aspiration, surgery, renal impairment (chronic) [11].

### **Conclusion:-**

Proper optimization and preparation of critical patients before surgery will reduce the complications.

Early detection of aspiration and immediate treatment will gain successful outcome.

Inflammatory septic markers are useful tools to predict the prognosis.

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