Symptomatic Pneumomediastinum: A Rare Complication during Progressive Pneumoperitoneum in the Management of Recurrent Complex Incisional Hernia

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Introduction

- **Managing Complex Incisional Hernia:**
  - Challenges persists.
  - Approaches: TAR, Posterior Component Separation, eTEP-TAR.
- **Role of Botox and PPP:**
  - Botox:
    - Purpose: Relaxation of abdominal muscles for enhanced component separation.
  - Progressive Pneumoperitoneum (PPP):
    - Objective: Facilitate tissue expansion, improving surgical outcomes.
- **Complications of PPP:**
  - Subcutaneous emphysema, pneumothorax, pneumocardium and metabolic acidosis
- **Uncommon Complications:**
  - Symptomatic pneumomediastinum, a rare occurrence, observed in our case.
- **Our Case:**
  - Previous TAR with recurrence, prompting redo surgery.
  - Preoperative Phase:
    - PPP initiation led to unexpected respiratory difficulties.
  - Diagnostic Confirmation:
    - CECT scans revealed symptomatic pneumomediastinum.



Fig. 1 XRAY showing Pneumomediastinum with Pigtails in Situ (Inserted to create Pneumoperitoneum)

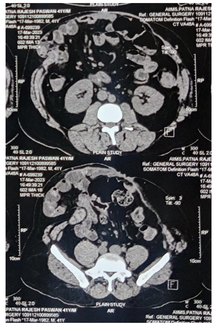
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Case Description

- **Patient:**
  - Name: Mr. X
  - Age: 41 years
- **First Surgery for M1-M4W3R0**
  - Posterior Component Separation with TAR with bridging mesh.
  - Developed Quaternary abdominal compartment syndrome managed conservatively.
  - Managed by opening up of skin, anterior rectus sheath and vacuum assisted closure.
- **Current Presentation:**
  - Incisional hernia recurrence.
    EHS – M1-M4W3R1
    (20 x 20 cm defect size)
  - Planned Redo Surgery with preoperative Botox and PPP.



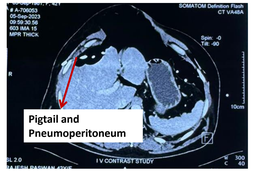
Recurrence at 1 year

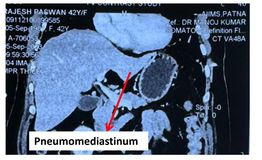


Complication and its management

- **Botox Injection:** Administered as part of the preoperative strategy.
- **Progressive Preoperative Pneumoperitoneum (PPP):**
  - Daily PPP with 750-1000 ml of air until patient tolerance.
  - Given for 6 sittings pre-operatively
  - Pre-surgery, patient reported persistent tachypnoea.
- **Diagnostic Confirmation:**
  - Xray Chest revealed features s/o pneumomediastinum.
  - CECT Scan confirmed symptomatic pneumomediastinum.

- **Post-PPP Pneumomediastinum Management:**
  - Surgery postponed.
  - Pigtail catheter intentionally left open to address respiratory issues.
  - Surgical Intervention post 1 week:
    Anterior Component Separation (40 x 40 cm polypropylene mesh) with Peritoneal Flap Cover.
- **Outcome:**
  - Despite the complication of symptomatic pneumomediastinum.
  - Successful hernia repair achieved.





CECT S/O Pneumomediastinum

Conclusion

- Complex Incisional Hernia Management – Challenging
- Complications and PPP:
  - PPP, while beneficial, poses potential complications.
  - Symptomatic pneumomediastinum encountered in our case.
- Importance of Vigilance:
  - Vigilant monitoring is crucial during PPP.
  - Prompt management of unexpected complications.
- Successful Outcome:
  - Despite challenges, successful surgical intervention achieved.
- **Key Takeaways:**
  - PPP is a valuable preparatory tool, but clinicians must be aware of potential complications.
  - Individualized management strategies are crucial for optimal outcomes.
  - ACS is a good alternative of redo TAR in cases of Post TAR recurrence.
  - Preservation of Hernial sac can help in closure of complex hernias.



Underwent Redo ACS with Peritoneal Flap closure.
(1 week Post Op)