CHANGES IN INTRA-ABDOMINAL PRESSURE FOLLOWING ENDOSCOPIC COMPONENT SEPARATION WITH LAPAROSCOPIC MESH RECONSTRUCTION FOR LARGE MIDLINE INCISIONAL HERNIAS

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INTRODUCTION

- Large midline ventral hernia (LMVH): Abdominal content residing outside the abdominal cavity with loss of domain
- Repositioning contents inside abdominal cavity
  - Leads to rise of intra-abdominal pressure (IAP)
  - Causing Intra-abdominal hypertension(IAH)
  - Or Abdominal compartment syndrome(ACS)
- Component separation technique(CST):
  - A novel technique for reconstruction of (LMVH)
  - Deals with rise in IAP
- Indirect IAP measurement done using Intra-vesical pressure(IVP)
  - A simple and practical method which can be set up easily
  - Validated in experimental and clinical studies
- Changes in airway pressure
  - Surrogate estimates of IAP during abdominal closure.

METHODS

- Excluding those with recurrent incisional hernia who had undergone meshplasty, benign prostatic hyperplasia, pregnant and lactating females, patients with pre-existing bladder disease, active infection, sinus or fistula at hernia site related to previous surgery.
- 30 patients with ASA I-II between 18yrs to 80yrs underwent endoscopic component separation with laparoscopic mesh hernioplasty for large (defect size >6cm) midline incisional hernia (Tanaka index >25). IVP was evaluated in all patients at four stages (pre-operative, immediately after induction of anesthesia, after completion of procedure intraoperatively before reversal is given and finally 24 hrs post-operatively) and Paw evaluated immediately after induction of anesthesia & after completion of procedure intraoperatively.

OBJECTIVE

➢ PRIMARY OBJECTIVE

- To evaluate change in intra-abdominal pressure immediately and 24 hrs after ECST with IPOM+

➢ SECONDARY OBJECTIVE

- To see association in percentage change in Intra-abdominal pressure as measured by 2 methods
  1. Intra-vesical pressure
  2. Peak airway pressure

Table 1: Change in mean IAP(IVP)

IAP(IVP)	MEAN±SD	P VALUE
PRE OP	9.43 ± 0.98	P VALUE=0.12
POST OP	9.93 ± 1.02	

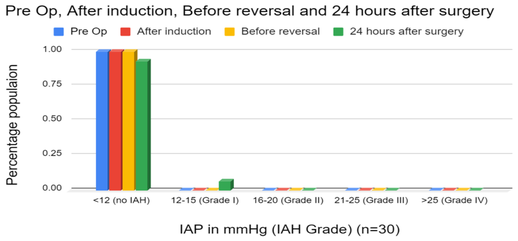


Fig 1: Change in mean IAP at 3 intervals represented in graph

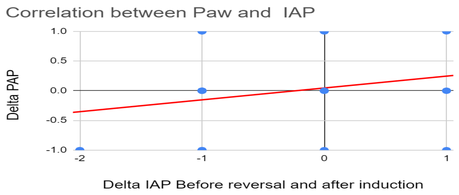


Fig 2: Correlation of P_{aw} to change in

RESULT

➢ Change in IVP pre-op and 24hrs post-op:

- The mean value of IAP(as measured by IVP) increased from pre-op mean of 9.43 ± 0.988 to 9.93 ± 1.02 after 24hrs in post-op period. Both pre-op and post-op mean values are falling in normal range of IAP (P=0.122), statistically significant change
- All 30 patients had pre-op IAP less than 12mmHg and the increase in IAP after 24hrs in post-op period was normal(<12mmHg) in all patients except in 1 patient (3.34%) who had grade 1 intra-abdominal hypertension following endoscopic component separation and IPOM

➢ **Change in IVP intra-op:** Mean of IVP measured intra-operatively, after induction (8.66 ± 0.82mmHg) and before reversal(8.66 ± 0.831mmHg) showed an insignificant increase in IAP. However, all patients were having IAP <12mmHg, P=0.299

➢ **Change in Paw intra-op:** Mean value of P_{aw} after induction before starting surgery was 19.6 ± 1.22 with slight decrease noted before reversal just after completion of surgery to a mean of 19.53 ± 1.10. which is statistically insignificant(P=0.753)

➢ **Association between IVP and Paw intra-op:** Positive correlation present between IVP and Paw with pearson correlation coefficient r =0.158015 (statistically significant with p value = 0.0029591

CONCLUSION

- No significant change in IAP post ECST with IPOM Plus
- Thus, we conclude that ECST with IPOM Plus is a reliable technique for repair of large midline incisional hernias.
- A positive correlation was noted between IVP and P_{aw} measured intra-operatively.
- Thus, we conclude that Paw modification – indirect guide of intra-op IAP changes



Fig 3: Large ventral midline incisional hernia

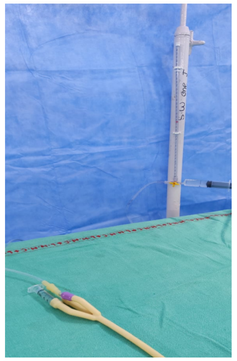


Fig 4: Instrument (Manometer) to calculate IAP

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