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Incisional hernia

Dr Prakash Kumar Sasmal,
Dr Monica Gureh
All India Institute of Medical Sciences, Bhubaneswar, **INDIA**

Preoperative progressive intra-abdominal reduction (PIAR) for large reducible abdominal wall hernias: *An effective non-invasive procedure for increasing abdominal cavity volume in "loss of domain" hernia.*

Aim

To evaluate the efficacy and safety of the **PIAR** technique for managing large abdominal wall hernias with loss of domain (LOD).

Materials and Methods

Study Design: Prospective study

Study Period: September 2022 to December 2023,

Sample size: 10 patients with large reducible incisional / ventral hernias exhibiting LOD. Patient data such as age, hernia characteristics, and volumetric measurements (hernia volume [VH] and abdominal cavity volume [VAC]) were collected using CT volumetry. PIAR, performed over 18 ± 3 days, aimed at gradually reducing hernial contents and abdominal cavity expansion using bandages.

Primary outcome: Changes in VH/VAC ratio

Secondary outcomes: VAC increase, ease of repair, and complications, including surgical site occurrences(SSO), abdominal compartment syndrome(ACS), and hernia recurrence.

Results

- The average patient age was 58 ± 9 years, with a male-to-female ratio of 4:6.
- PIAR achieved a 16% increase in VAC, a 68% reduction in VH, and a 26% decrease in hernia width.
- The average Tanaka score was 0.28 ± 0.03, with a 65% VH/VAC ratio reduction.
- Only 30% of patients required complex procedures (component separation / transversus abdominis release), while the rest underwent Rives-Stoppa (40%) or onlay repair (30%).
- Superficial skin necrosis occurred in 1 patient, and the SSO rate was 20%.
- No cases of ACS or hernia recurrence were observed during the one-year follow-up.

Conclusions

PIAR is a safe, cheap, and effective preoperative alternative for managing large hernias with LOD without need of progressive pneumoperitoneum or botulinum toxin.