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Perspective

Novel Laparoscopic Access Device (LAD)

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Perspective

A large of complications to do with laparoscopic surgery have to do with laparoscopic access1. The current common modes of access include the Open Hasson, Closed Veress needle, and Optical Trocar techniques. These are known to be associated with the following risks and disadvantages:

1. The Open Hasson technique - risk of air leak [2]

2. Veress Needle - risk of injury to intra-abdominal structures owing to it being a "blind" procedure [3,4]

3. Optical trocar - risk of injury to intra-abdominal structures as tip not completely blunt respectively [5]

The Novel Laparoscopic Access Device seeks to provide a safe mode of laparoscopic entry.

Novel Laparoscopic Access Device – Parts

- Tip - Completely blunt i.e. hemispherical hence lesser risk of injury to intra-abdominal structures. Has openings to let in insufflating gas i.e. CO_2
- Shaft - Has spirals/threads starting well away from tip. Diameter can be as small as the smallest available borescope/endoscope i.e. 1mm
- Proximal End (External) - Has 2 openings; one to put in endoscope and other for insufflation.

Novel Laparoscopic Access Device - Features

- Tiny incision lessening risk of air leak
- Introduction by screwing motion rather than direct pressure
- Direct Visualisation of abdominal wall layers and intra-abdominal structures
- Has a blunt tip reducing risk of injury to intra-abdominal structures?
- Mode of creating Pneumoperitoneum
- Facilitates introduction of other ports under direct vision
- The device is not just limited to use in the abdomen but can be used elsewhere e.g. Orthopaedic (joint) operations, End0crine (Thyroid) operations etc.

Novel Laparoscopic Access Device – Mode of use

1. Make a small skin incision as required site e.g. periumbilical region.

2. Introduce a lighted borescope/endoscope into the-Novel Laparoscopic Access Device.

3. Introduce the Device by gentle but firm screwing motion through the abdominal wall and into the peritoneal cavity with direct visualisation

4. Once the tip is inside the peritoneal cavity as confirmed by visualisation of intra-abdominal structures, connect the gas tubing to the device and start insufflation.

5. Once sufficient pneumoperitoneum has been achieved, other ports can be introduced with direct visualisation in other parts the abdomen.

6. The same or a larger endoscope can be now introduced through any of the other ports whose distal ends are open for carrying on with the operative procedure.

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Figure 1: Novel Laparoscopic Access Device with Borescope in situ.

7. The Novel Laparoscopic Access Device can continue to be used for gas insufflation.

The device can be manufactured either for single use or as a reusable product. Recommended material of production could be but is not limited to Clear Polycarbonate.

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