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The Use of Towel Clips in Open Access laparoscopic technique. A novel innovation.

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Abstract

Background

Gas leakage is a major concern of any minimal access surgeon during laparoscopy especially in open access technique. Towel clips have been known to be of benefit in surgical draping. It has been also reported in literature to be of use in skin retraction during laparoscopic access. However, its use to prevent gas leakage has not been explored.

Aim *This is to report the usefulness of towel clips in open access technique of laparoscopy, in preventing gas leakage.*

Methods

The routine skin preparation for laparoscopy was done. The Backhaus towel clamp was used to hold and stabilize the edge(s) of the 10mm cannula, in order to provide air tight intra-abdominal condition and prevent gaseous leakage. Cetrimide containing chlorhexidine was used to assess leakage. Bubbles of gas peri canular signifies leakage.

Results.

There was no leakage at flow rate of 2litres per minute. The usual flow rate of 6litres per minute with subsequent increase up to 12litres per minute sustained the desired pressure during procedure and no gas leak was noted in cases were towel clip was used. Hence, the actual intra-abdominal pressure fluctuated within the preset pressure of 12mmHg and 15mmHg.

Conclusion

Towel clips besides its use as draping and retraction instrument, can be very useful in prevention of gas leakage in open access technique during laparoscopic surgery.

Key words*: The Usefulness. Towel Clips. Open Access technique of laparoscopy, means of prevention, gas leakage.*

Introduction

Gas leakage is a major concern of any minimal access surgeon during laparoscopy especially in open access techniques. Towel clips have been known to be of benefit in surgical draping. It has been also reported in literature to be of use in skin traction during laparoscopic access [1-3]. However, its use to prevent gas leakage has not been noted.

Aim This is to report the usefulness of towel clips in open access technique of laparoscopy, in preventing of gas leakage.

Methods A 1cm incision was made on the supra-umbilical crease. This was dilated with number one artery forceps and scissors repeatedly. The fascia was picked with Allis forceps. While maintaining traction a nick was made to open the peritoneal cavity where the periosteum was attached. A 10 mm port was inserted under direct vision and the trocar was withdrawn leaving the canula insitu. The telescope was then inserted to confirm correct access by visualizing the bowel or viscera.

The Backhaus towel clamp was used to hold and stabilize the edge(s) of the 10mm cannula, so to provide air tight intra-abdominal condition and prevent gaseous leakage. Fig 1 and 2. Cetrimide containing chlorhexidine was used to assess leakage. Peri canular bubbles of gas signifies leakage.

Results

Ten consecutive cases for laparoscopic procedures had towel clip application to control gas leakage. Three of the case had laparoscopic cholecystectomy, five had diagnostic laparoscopy, and two had laparoscopic appendicetomy.

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There was no leakage at flow rate of 2litres per minute. The usual flow rate of 6 litres per minute with subsequent increase up to 12litres per minute sustained the desired pressure during procedure and no gas leak was noted in each case. Thus, the actual intra-abdominal pressure fluctuated within the preset pressure of 12mmHg and 15mmHg respectively Fig 2.

Post-operative pain was also not remarkable as most of the patients were discharged on the first operative day with an average visual analogue scale of 2.

The wound healing in all the cases (fig 3 and 4) were good except the case of appendicctomy where there was port site infection probably due to the fact that inflammed appendix was delivered via the site without retrieval bag,

Fig 1. Towel Clips used to secure end of canula without insufflation

Fig 2. Towel Clips used to secure end of canula with insufflation at 6L per minute.

Fig 3. Immediate post-operative picture of the umbilical area after removal of canula

Fig 4. Wound healing of umbilicus 5th postoperative day.

Fig 5. Wound healing of umbilical area two weeks post-operative.

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Discussion

Laparoscopy is currently on the increase in developing economy. Gas leakage has remarkable complications during laparoscopy [4-6]. The carbon dioxide which often times is the insufflating gas of choice could cause bowel dryness, bowel desiccation, hypothermia, hypercarbia among other complictions. Thus, leakage is a major concern for any laparoscopic surgeon. This challenge is often encountered during open access technique unlike in close access where the use of Veress needle in initial insufflation aids the introduction of primary port without gas leakage [7-9]. The open access could be Hasson cannula or direct trocar access. The towel clip can be used in both the Hasson and direct trocar access. In the current report, all cases were done using direct trocar access for the primary port. Documented evidence in literature showed that open access technique is usually associated with gas leakage [10-11]. This was our experience until the discovery of the usefulness of the towel clip (Backhaus or Mayo clip) to forestall leakage.

Towel clip was noted to be a source of post-operative pain especially when used as a skin retractor in the umbilicus. In our series, we used diluted heavy Marcaine (mixture of 2.5 ml of1% Lidocaine and 2.5 ml of 5% Bupivacaine) to locally infiltrate the umbilical area following each procedure. This method also provided marked reduction in post-operative pain.

Port site infection, especially in the primary port, is another feared complication. We found that the use of towel clip did not affect post-operative primary port site infection. All our patients were discharged on the first post-operative day with no report of port site infection. The only case of delayed wound healing and hospital discharge occurred in a patient who had a repeated laparoscopy where the initial laparoscopy was diagnostic and the therapeutic laparoscopy was then done subsequently.

Other instruments such as the Kocher's forceps could perform a similar function as the towel clip. We tried it out and found that although Kochers's forceps is also effective, it has a thicker impression on the umbilicus with more tissue injury. A randomized study will do a better report on the comparative outcome of towel clip and Kocher's forceps especially on post-operative pain and pot site infections.

Conclusion.

Towel clip besides its use for draping and retraction, can be very useful in prevention of gas leakage in open access technique during laparoscopic surgery. We recommend its wide use

Presentations.

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''The Usefulness of Towel Clips in Open Access technique of laparoscopy, as a means of prevention of gas leakage''.

Consent

Written informed consents were obtained from the patients for publication of these Cases and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

Competing interests

The author(s) declare that they have no competing interests.

Authors' contribution

"All authors read and approved the final manuscript". POI - conception and design and have given final approval of the version to be published and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Acquisition of data, or analysis and interpretation of data and drafting the manuscript. NJJ (Post Humous) -Acquisition of data and revising it critically for important intellectual content.

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