

Post-operative Use of Abdominal Binders: Bound to Tradition?

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Abstract

Introduction: An abdominal binder is an elastic or non-elastic belt applied to the abdomen in post-operative patients with abdominal surgery. These provide support and splintage to the operative wound, reducing incision site pain. The present work aims to investigate the institutional practices regarding the use of abdominal binders, gain insight into the expected benefits that these practices are targeted to achieve, and determine if current practices are in accordance with the available evidence. **Materials and Methods:** It is a survey-based questionnaire study conducted at the Department of Surgical Oncology at Shaukat Khanum Memorial Cancer Hospital and Research Centre. Respondents were inquired about designation, frequency of binder usage, reasons for prescribing/not prescribing binders, duration of the prescription, clinical factors that influence the decision to use binders and the estimated cost of the device. **Results:** The questionnaire was emailed to 85 surgeons working in the department of surgical oncology. Out of these, 34 responded, resulting in an overall response rate of 40%. Twenty-two (64.7%) of the respondents used abdominal binders regularly in post-operative patients. Eight (22.5%) reported using it occasionally, while 4 (11.7%) did not use abdominal binders in their clinical practice. About 67.8% and 50% of the respondents believed that it helped early mobilisation and better pain control, respectively. About 60.7% of the respondents believed that binders prevent incisional hernia formation, while 46.4% were of the view that these prevented wound dehiscence. Up to 60% of the respondents reported using an abdominal binder for 1 week-1 month after discharge, whereas 23.3% preferred using it only till discharge. **Conclusion:** This survey demonstrates a gap between the evidence and actual practice. These gaps are often overlooked because of busy clinical practice. Equally important is the issue of surgical conservatism and the intrinsic desire to resist change by continuing old practices.

Keywords: Abdominal binders, evidence-based medicine, incisional hernia, pain management, post-operative mobilisation, wound dehiscence

Introduction

An abdominal binder is an elastic or non-elastic belt applied to the abdomen in post-operative patients with abdominal surgery. These provide support

and splintage to the operative wound, reducing incision site pain.^[1] Optimal pain control is crucial for patient comfort. It leads to early mobilisation of the patient, a concept central to the idea of Enhanced Recovery After Surgery.^[2]

Traditions can result from the transfer of the practice and its supposed benefits from one generation of surgeons to the next while ignoring the actual ethos. The traditional usage of historical gadgets like abdominal binders for unproven benefits might be troublesome. It can lead to overprescription, which incurs additional costs and is also perceived to be a potential source of discomfort.

While the advantages of using abdominal binders are well documented, the intended benefits of using these devices differ significantly from proven benefits.^[3] The present work aims to investigate the institutional practices regarding the use of abdominal binders, gain insight into the expected benefits that these practices are targeted to achieve, and determine if current practices are in accordance with the available evidence.

Materials and Methods

It is a survey-based questionnaire study that was conducted at the Department of Surgical Oncology at Shaukat Khanum Memorial Cancer Hospital and Research Centre (SKMCH & RC), Lahore, Punjab, Pakistan. The details of the questionnaire are given in Box 1. An online self-administered questionnaire was created. The link to the questionnaire was emailed to the surgeons currently working in the department of surgical oncology. Responses were collected from 1 to 20 February 2022.

Respondents were inquired about age group, designation, frequency of binder usage, reasons for prescribing/not prescribing binders, duration of prescription (till discharge to more than 1 month after discharge), clinical factors that influence the decision to use binders and the estimated cost of the device (PKR 500-10,000). All the questions were close ended.

Descriptive statistical analysis of the answers by the respondents was carried out using SPSS v20.

Results

The link to the questionnaire was emailed to 85 surgeons working in the Department of

Surgical Oncology, SKMCH & RC. Out of these, 34 responded, resulting in an overall response rate of 40%. The composition of the respondents according to their designation is summarised in Figure 1.

Twenty-two (64.7%) of the respondents used abdominal binders regularly in post-operative patients. Eight (22.5%) reported using them occasionally. In comparison, 4 (11.7%) did not use abdominal binders in their clinical practice. The breakdown of the frequency of use of abdominal binders according to the designation of the respondents is given in Table 1. When inquired about the reasons for not prescribing abdominal binders, pain/discomfort and detrimental impact on respiratory functions were the most commonly stated. Regarding the expected benefits of using abdominal binders, 67.8% and 50% of the respondents believed it helped early mobilisation and better pain control, respectively. About 60.7% of the respondents believed that binders prevent incisional hernia formation, while 46.4% believed that these prevented wound dehiscence.

Obesity was the most important clinical factor (67.74%) influencing the use of abdominal binders in post-operative patients. Up to 60% of the respondents reported using an abdominal binder for 1 week-1 month after discharge, whereas 23.3% preferred using it only till discharge. Half of the respondents (43.75%) were correctly able to

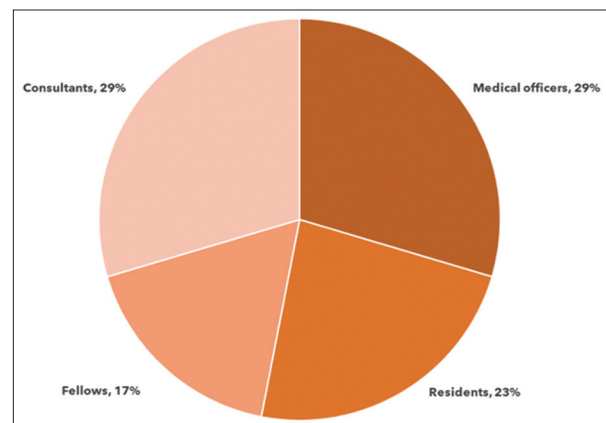


Figure 1: Composition of the respondents

Box 1: The questionnaire used for data collection

Abdominal binders are compressible belts that are prescribed postoperatively with the intent of augmenting recovery process. We are conducting a survey to investigate the views that different surgeons have regarding the use of abdominal binders in patients that have undergone abdominal surgery.

The survey is anonymous and cannot be traced back to the respondent. No personally identifiable information is taken. It will take <90 s of your time to complete this survey. The results of this survey will also help us determine if there is a need to conduct a prospective study to evaluate the use of abdominal binders.

Q1. Your age group?

- A. 20–30
- B. 30–40
- C. 40–50
- D. 50+

Q2. Your designation?

- A. Medical officer
- B. Resident
- C. Fellow
- D. Senior instructor
- E. Consultant

Q3. How often do you use abdominal binders on post-operative patients in your current practice?

- A. Never
- B. Rarely
- C. On occasions
- D. Regularly

Q4. If you do not prescribe abdominal binders, what is/are the reason/s? You can select multiple reasons. Skip to Q5 if you prescribe abdominal binders regularly

- A. Cause more pain and discomfort
- B. Limit respiratory effort
- C. Leads to poor hygiene/increases risk of SSI
- D. Cause more harm than benefit
- E. Lack of evidence in favour of use of abdominal binders
- F. Not available in your centre
- G. Others (please specify)

Q5. If you do prescribe abdominal binders, what is/are the benefit/s in your opinion? You can select multiple reasons. Skip Q5, Q6, Q7, if you do not prescribe abdominal binders

- A. To prevent wound dehiscence
- B. To prevent incisional hernias
- C. For better pain control
- D. To help in mobilisation of the patient
- E. Others (please specify)

Q6. For how long do you prescribe abdominal binders postoperatively?

- A. Till discharge
- B. 1 week after discharge
- C. 1 month after discharge
- D. More than 1 month after discharge

Q7. Which patient-related factor influences (the most) your decision to use an abdominal binder?

- A. Obesity
- B. Smoking
- C. Re-do surgery
- D. Others (please specify)

Q8. What is your estimate regarding the average cost of an abdominal binder?

- A. PKR 500
- B. PKR 2000
- C. PKR 5000
- D. PKR 10,000

Table 1: Frequency of abdominal binder usage according to the designation of respondents

Response/designation	Medical officers	Residents	Fellows	Consultants
Regularly	80%	87.5%	83.3%	20%
Occasionally	10%	12.5%	16.7%	50%
Never	10%	0%	0%	30%

estimate the cost of abdominal binder. In contrast, it was underestimated by the other half (40.63%).

Discussion

Postoperatively, patients are counselled to splint the incision using the hand while coughing to reduce pain.^[1] Many patients tend to support the incision while mobilising instinctively. Abdominal binders provide support and splintage to the incision site, reducing post-operative pain and promoting mobilisation. According to a 2021 systematic review that included five randomised controlled trials, wearing abdominal binders after laparotomy reduced post-operative pain on the 1st and 3rd post-operative days. It also significantly improved physical activity on the 3rd post-operative day.^[4]

What is noteworthy is that the intended benefits of using abdominal binders differ significantly from the proven benefits. About 83% of the French surgeons considered prevention of wound dehiscence and incisional hernias to be the main expected benefit of using abdominal binder.^[3] In our survey, 60.7% of the respondents believed that abdominal binders prevent incisional hernias. In comparison, 46.6% of the respondents believed that these prevent wound dehiscence. These results highlight misconceptions regarding the potential benefits of abdominal binders. It is equally important to point out that 67.8% of the respondents reported using abdominal binders to promote post-operative mobilisation, a fact supported by the literature.^[5,6]

While studies have shown the effectiveness of abdominal binders in providing effective pain control, on closer look, it is hard to ignore the fact that this better pain control is not demonstrated by studies in which patients underwent epidural anaesthesia.^[7,8] Clay *et al.* reported a significant

difference in pain between the binder and non-binder group only at post-operative day 5, by which time epidural analgesia is usually stopped.^[8] These observations question the utility of prescribing abdominal binders in centres with the widespread use of epidural analgesia for pain control. In an emergency setting or a low-resourced centre, abdominal binders can provide a low-cost and non-pharmacological modality for pain control.

Abdominal binders are often attributed to preventing wound dehiscence and incisional hernia formation though no evidence supports it. The majority of the respondents in our survey advocated using abdominal binders for 1 week-1 month after discharge. Suppose the objective is to prevent incisional hernia formation. In that case, this duration is inadequate since Fink and Baumann have shown that incisional hernia formation is greater at 3 years compared to 1 year of follow-up.^[9] A similar observation was made by Bouvier *et al.* in their work on surgical practices regarding abdominal binder usage among French surgeons.^[3] It has also been suggested that prolonged use of abdominal binders may lead to disuse atrophy of abdominal musculature, thus increasing the risk of incisional hernia formation.^[3]

The survey results also showed a lack of awareness of the evidence regarding post-operative usage of abdominal binders. This was also true for those who did not prescribe binders. The most common reasons for not using abdominal binders were pain/discomfort and detrimental impact on respiratory functions, which have been ruled out by multiple studies.^[5,6,8]

A significant limitation of our work is that it is based in a single centre, the results of which cannot be generalised. To address this shortcoming, a

larger survey is being planned to look into the surgical practices of Pakistani surgeons regarding abdominal binders. Despite these limitations, this survey is essential because it demonstrates a gap between the evidence and actual practice at our institution. Many a time, these gaps are overlooked because of busy clinical practice. Equally important is the issue of surgical conservatism and the intrinsic desire to resist change by continuing old practices. Let us not forget that even after presenting definitive evidence, Semmelweis was not able to persuade the surgical community to wash hands before surgery! Indeed, the Semmelweis reflex is still very much present today.^[10]

Evidence-based practice is central to the idea of modern surgery. While the significance of evidence-based medicine is universally acknowledged, realistically, many surgical practices are based on historical traditions and low-level evidence. Many of these practices are passed down from one generation of surgeons to the next, even though ample evidence suggests otherwise. Post-operative use of abdominal binders in patients undergoing abdominal surgeries is one such practice.

In cancer centres such as ours, where pain control modalities such as epidural analgesia and patient-controlled analgesia are in regular use, the benefit of prescribing abdominal binders in pain control is minimal. However, a selective group of patients might benefit from its use, such as those undergoing emergency surgery.

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Authors' Contributions

Conceived and designed the analysis: IBK and MB. Collected the data: IBK and MB. Contributed data or analysis tools: N/A. Performed the analysis: IBK, MB and IA. Wrote the paper: IBK, MB and IA.