BundeswehrZentralkrankenhaus KOBLENZ
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# Reconstruction of traumatic hernias and abdominal wall defects from war injuries: A case series from Ukraine and Germany

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## Background

Traumatic hernias and abdominal wall defects are rare and arise through blunt trauma usually. Consequently, the abdominal muscles tear and an abdominal wall defect/hernia develops. The diagnosis is made using physical examination, sonography and CT-Scan. If a traumatic hernia is present, there are frequently abdominal injuries that need to be treated first.

## Method

The literature search was conducted with pubmed. The search terms were “traumatic hernia” and “traumatic abdominal wall defect”. 1809 publication were found, doubles and non-traumatics and traumatic diaphragmatic hernia were excluded. A total of 222 publications were considered. Case reports are the most common, followed by retrospective analyzes and literature reviews about traumatic abdominal wall hernias between 2000 and 2025. In addition, our own cases from the recent past, including the war in Ukraine, are presented.

## Results

Literature:

- Traffic accidents with blunt abdominal trauma

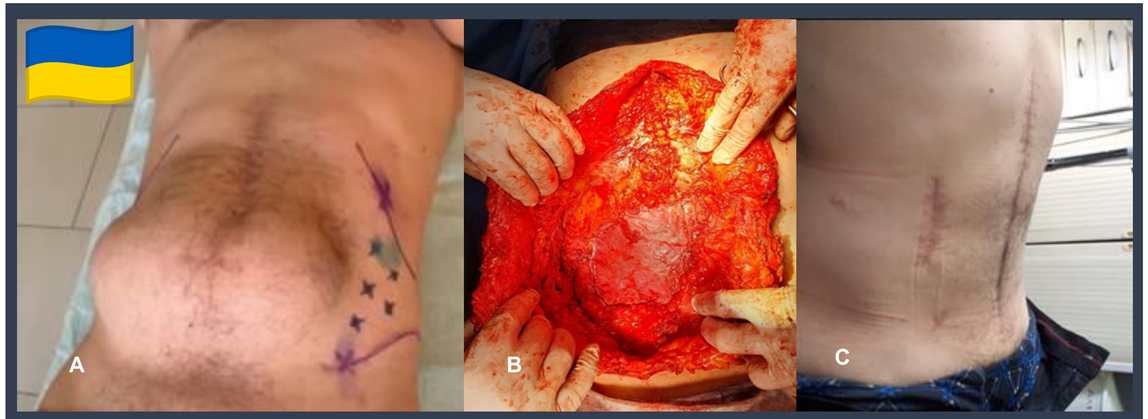
→ frequently accompanied by bowel injuries (small intestine up to 69%, large intestine up to 36%)

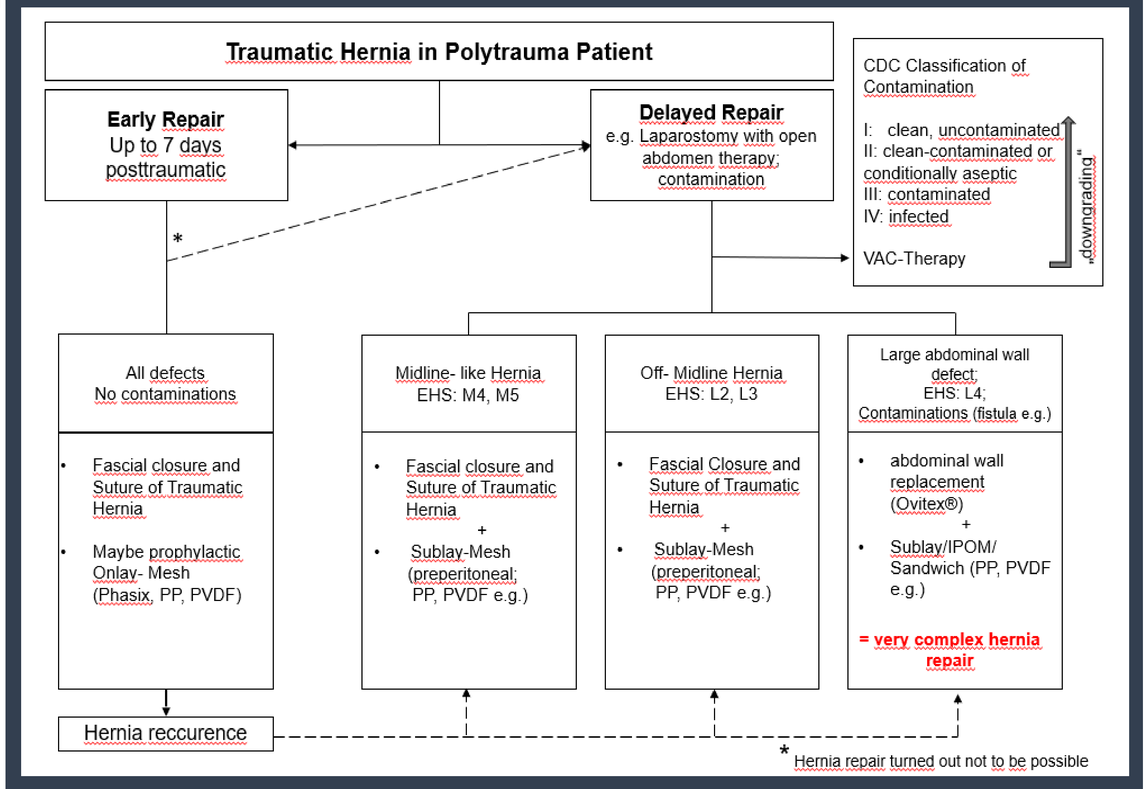
- Handlebar hernia is a typical injury type and frequently described
- War-related traumatic abdominal wall defects are rarely described

Cases:

- Ukrainian soldiers with traumatic abdominal wall hernias or defects resulting from blunt (n = 1) and penetrating injuries from gunshot or explosion incidents (n = 4), which were reconstructed months later after the acute phase.
- German patients with avulsion of the lateral and/or medial abdominal muscles after traffic accidents

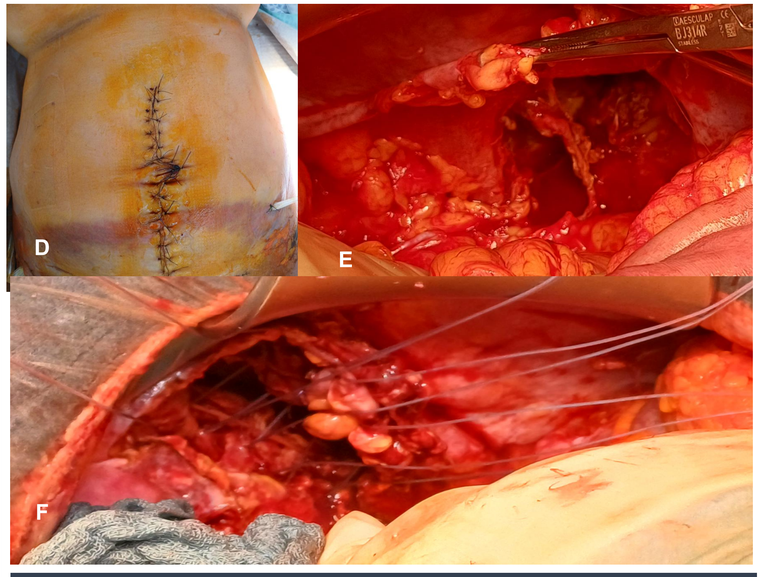
- Developed treatment algorithm with two strategies:
  - **Early repair** in the absence of contamination within seven days
  - **Delayed repair** in the case of contamination or open abdomen after the acute phase followed by mesh-based reconstruction.




## Case reports

A: Ukrainian soldier after tank gunshot wound with penetrating thoracic and abdominal trauma; preoperative findings regarding rectus abdominis muscle defect
B: The ventral fascial layer was reconstructed in the defect zone using a free peritoneal flap
C: Postoperative findings after abdominal wall reconstruction 9 months after trauma
D: Patient with avulsion of the lateral abdominal muscles following a traffic accident; preoperative findings
E: Intraoperative findings showing the lateral defect
F: Reconstruction with non-absorbable suture of the defect




## Conclusion

Traumatic abdominal wall hernias and defects, particularly those resulting from war injuries, are rarely reported but are currently occurring with increasing frequency. The proposed treatment algorithm can structure management and underscores the importance of abdominal wall reconstruction as part of convalescence and rehabilitation.

**Conflict of interest**: None **Contact**: angelinaklein@bundeswehr.org