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ABDOMINAL WALL SOLUTIONS

Scientific Evidence Supporting fasciotens®

Stay informed about innovative approaches that enhance surgical success and patient recovery, supported by data from your colleagues' clinical experience. This handout provides concise summaries of peer-reviewed publications on fasciotens® authored by respected experts in the field. These studies highlight:

- Clinical evidence supporting the safety and efficacy of fasciotens® devices
- Real-world data on their integration into surgical practice
- The expanding adoption of vertical fascial traction within the global AWR community

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Book a meeting with one of our surgeons and discuss your case of complex abdominal wall hernias, open abdomen or pediatric abdominal wall defects.

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fasciotens®Hernia

Springer Hernia, 29:154 (2025)

Follow-up of Complex Hernia Repair with Intraoperative Fascial Traction

Woeste G., Dascalescu S., Wegner F., Meier, H., Sardoschau, N., Kiehle, A., Dag, H., Malaibari, Z., Niebuhr, H.

This publication reports long-term follow-up data on intraoperative fascial traction in complex hernia repair. The study includes data of 100 patients compelling 30-days postoperative outcomes and follow-up data gathered after outpatient appointments, including standardized dynamic abdominal wall ultrasound (DAWUS). The defect width in this cohort was 15.8 cm on average. 87 % of all patients were pre-treated with Botulinum Toxin A.

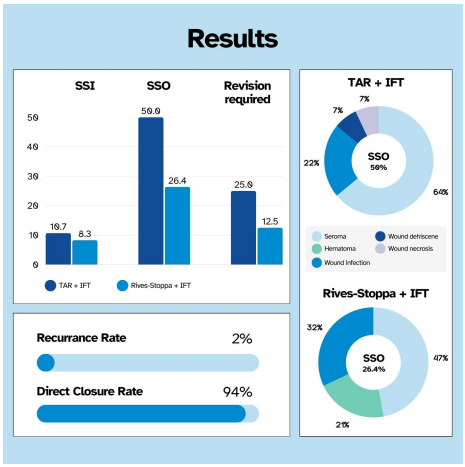

Figure created by fasciotens

- **Low recurrence rate of 2%**
- **Direct closure rate of 94%**
- **Mean follow-up time of 19.6 months**
- **Significantly higher complication rate if additional TAR was performed**

Springer Hernia, 28:2273–2283 (2024)

Preoperative botulinum toxin A (BTA) and intraoperative fascial traction (IFT) in the management of complex abdominal wall hernias

Niebuhr, H., Wegner, F., Dag, H. et al.

The study provides an overview of using IFT and BTA in complex hernia surgery and assesses short-term outcomes (after 30 days). Cases were included if BTA and Rives-Stoppa alone did not lead to a reconstruction of the abdominal wall. Intraoperative reduction of transverse hernia diameter of 9.81 cm (mean) is in line with findings from previous studies. The **Hamburg algorithm** was developed based on the results.

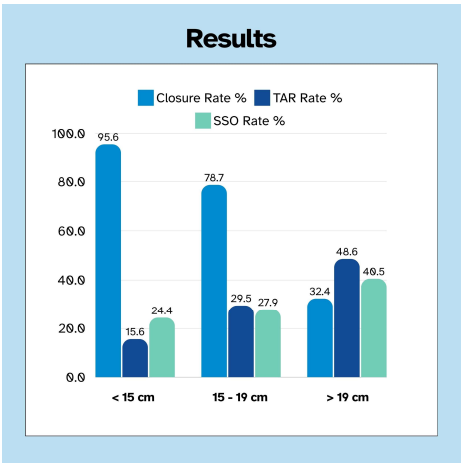

Figure created by fasciotens

- **Closure rate of 95.6 % in cases up to 15 cm width**
- **TAR rate increases with hernia diameter**
- **Mean operative time of 183.6 min including 30 min of IFT (less than comparable data for TAR - *Novitsky Y. W. et al, Ann Surg. 2016*)**
- **Complication and re-operation rates are significantly higher if additional TAR was performed (see graph for details)**

Journal of Abdominal Wall Surgery, 5:16018 (2026)

Intraoperative Fascial Traction - From Concept to Comprehensive Application

Niebuhr, H., Woeste, G., Winkler, C., Behle, S., Reinpold, W., Dag, H., Köckerling, F.

This review paper proposes an algorithmic use of intraoperative fascial traction in complex abdominal wall hernias. Based on defect width and intraoperative findings, traction is applied to assess and optimize medialization before considering additional reconstructive steps. The approach aims to standardize decision-making in CAWR.

Treatment Subgroups by Defect Width:

- **I: Rives-Stoppa repair forms the surgical base in all defect sizes**
- **II: Defect 8 to 19 cm: add IFT to achieve primary fascial closure**
- **III: Defect > 19 cm: Component separation plus IFT to enable additional medialization**

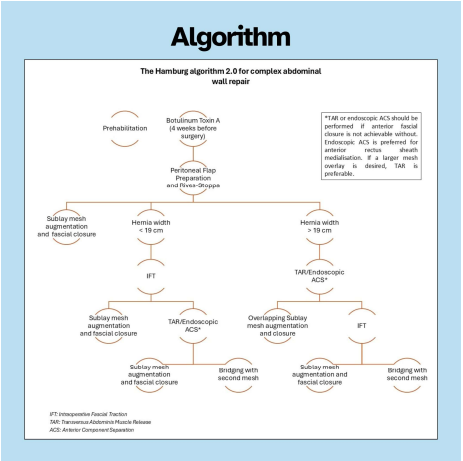

Figure created by fasciotens with images from publication

Springer Hernia, 28:2273–2283 (2024)

Laparoscopic application of intraoperative fascial traction (fasciotens®Hernia) during loss of domain scrotal hernia repair: A European multicenter case series with technical details and preliminary results

Barbosa, E., Barone, G., Bertoglio, C.L. et al.

Giant inguinoscrotal hernias with loss of domain (LOD) represent a complex surgical indication with a relevant risk of abdominal compartment syndrome (ACS) after reconstruction, due to limited intra-abdominal volume compared to hernia content. Intraoperative fascial traction (IFT) is used to increase abdominal volume and facilitate controlled reintegration of herniated abdominal organs. In this retrospective case series including 9 patients, vertical traction was applied laparoscopically whilst the linea alba remained intact. This study evaluated whether IFT can safely enable hernia reduction and prevent postoperative ACS. Included patients had large scrotal hernias classified as S2 or S3 treated across eight European centers with a median follow-up of 19 months. The paper indicates a reduced need for PPP to increase intra-abdominal volume and demonstrates a potential strategy for preventing ACS by using IFT.

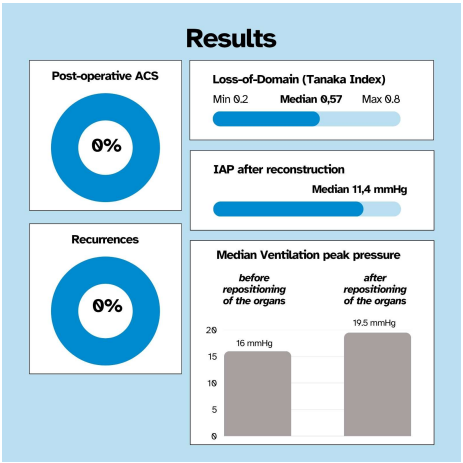

Figure created by fasciotens

- **0% postoperative ACS**
- **0% recurrence at 19 months follow-up**
- **Median IAP after reconstruction: 11.4 mmHg**
- **Median hospital stay 9.5 days**

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Journal of Abdominal Wall Surgery, 1:10356 (2022)

Intraoperative Fascial Traction in Robotic Abdominal Wall Surgery; An Early Experience

Bloemendaal, A. L. A.

The first article reporting three cases combining robotic ventral hernia repair and intraoperative fascial traction (IFT). A retromuscular hernia repair was performed, followed by a transcutaneous IFT.

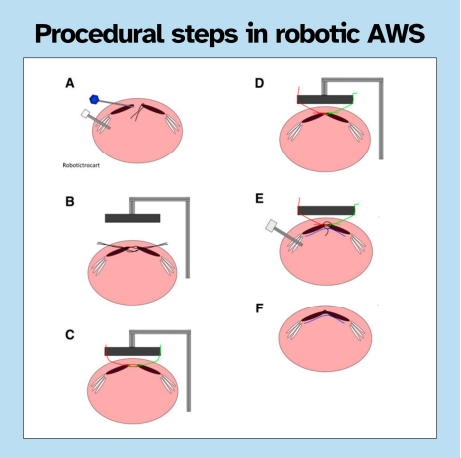

Figure created by fasciotens with images from publication

- **First cases showed promising results**
- **IFT is easily combinable with robotic hernia repair**
- **IFT facilitates robotic suturing of the hernia defect**
- **IFT can potentially be used in robotic repair for very large defects**

Springer Hernia (2024 April 14)

Assessment of myofascial medialization following intraoperative fascial traction (IFT) in a cadaveric model

Niebuhr, H., Reinpold, W., Morgenroth, F., Berger, C., Dag, H., Wehrenberg, U., Trzewik, J., Köckerling, F.

This study provides controlled, comparable data on the impact of IFT on the abdominal wall, aligning with similar studies for component separation.

Procedure:

- Retromuscular dissection (Rives-Stoppa) performed on 4 fresh-frozen specimens
- Followed by 30 minutes of fascial traction using fasciotens®Hernia
- Medial advancement of the lateral abdominal wall measured after 15 and 30 minutes
- Total medialization of 10.5 cm (mean) after 30 minutes with mean traction forces of 16.28 kg

In summary, the study confirms the results from the intraoperative use of fasciotens®Hernia.

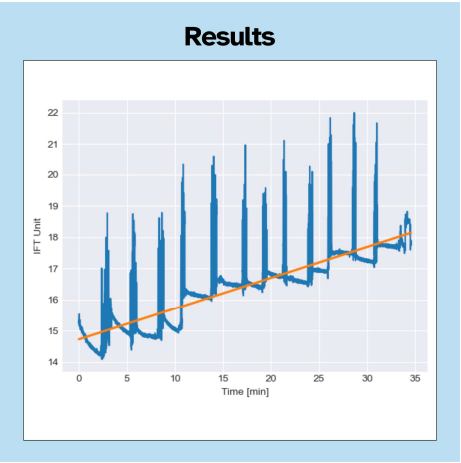

Figure created by fasciotens, graph from publication

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fasciotens®Abdomen

Front. Surg. 12:1644791 (2025)

Early results from the use of an innovative vertical fascial traction system for the management of patients with open abdomen

Ioannidis, O., Brenta, A., Theodorou, A., et al.

This prospective observational study evaluated fasciotens®Abdomen in open abdomen management at the General Hospital of Thessaloniki between May 2023 and June 2025. Of 37 patients requiring open abdomen management, 13 consecutive patients met criteria for application.

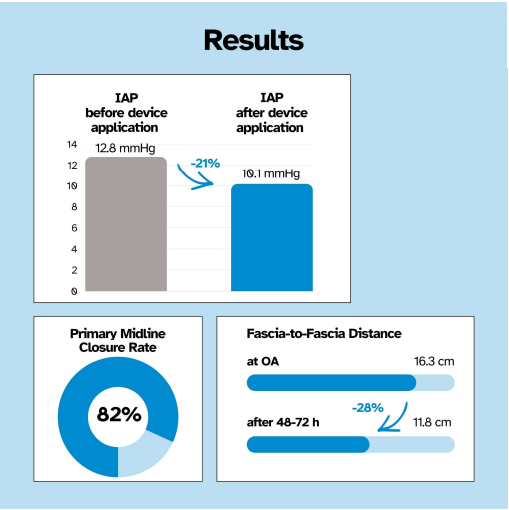

Figure created by fasciotens

- **Significant reduction of fascia-to-fascia distance from 16.3 cm to 11.8 cm on average (after 48-72h)**
- **Reduction of IAP from 12.8 to 10.1 mmHg**
- **Average of 2.6 revisions and 9.18 days till definitive fascial closure**
- **100 % definitive fascial closure in patients treated per protocol**

Front. Surg. 11:1449702 (2024)

Evaluating a novel vertical traction device for early closure in open abdomen management: a consecutive case series

Dohmen, J., Weissinger, D., Peter, AST, Theodorou, A., Kalff, JC, Stoffels, B., Lingohr, P., von Websky, M.

This study is the first to examine the effect of the application of fasciotens®Abdomen on intra-abdominal pressure (IAP). The study concludes that fasciotens®Abdomen is a safe and feasible option for managing OA cases. By promoting early definitive fascial closure, fasciotens®Abdomen may help reduce complications associated with OA.

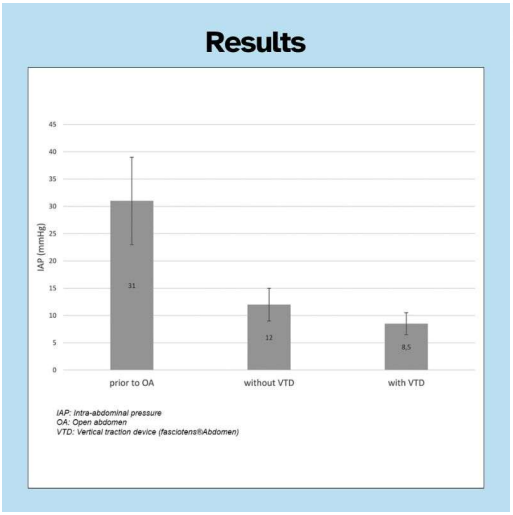

Figure created by fasciotens, graph from publication

- **Reduction of IAP from 31 ± 8 mmHg (before OA) to 8.5 ± 2 mmHg after fasciotens application**
- **Average of 3 ± 1 revisional surgeries**
- **Reduction in the fascia-to-fascia distance by 76% until definitive fascial closure**
- **Definitive fascial closure in 6/9 patients**

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Surgical Technology Int. 44th Edition (2024)

Vertical Mesh-Mediated Fascial Traction and Negative Pressure Wound Therapy: A Case Series of Nine Patients in General and Vascular Surgery

Mones, T. et al.

This publication shows the positive outcomes of the standardized combination of vertical mesh-mediated fascial traction (VMMFT) and negative pressure wound therapy (NPWT) while following a strict treatment pathway. Additionally, it describes the VAC draping technique.

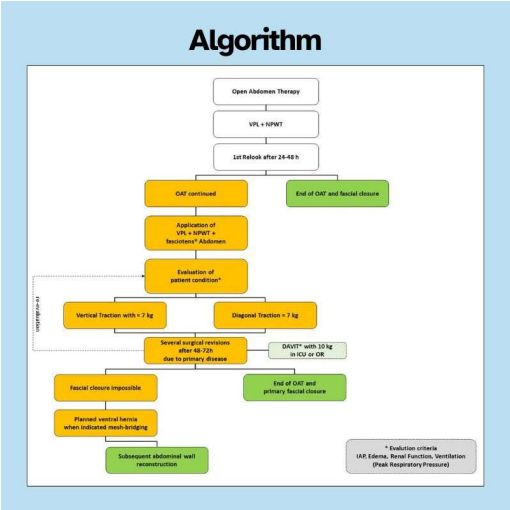

Figure created by fasciotens, graph from publication

- **Treatment algorithm for VMMFT in combination with NPWT**
- **Mean closure time of 6.2 days**
- **Definitive fascial closure in 7/9 patients (initial mean fascial dehiscence 14.2 cm)**
- **No treatment-related complications**

Surgery Surg Endos 2023; 5(1) Suppl. 2: 62-67

Fasciotens®Abdomen system application for delayed primary fascial closure and observed physiological improvement of the patient

Mavc, Z., Kunst, G.

fasciotens®Abdomen was used in a middle-aged patient with severe peritonitis after small bowel perforation.

"Post-installation of the device, rapid improvements in respiratory dynamics, diuresis, stoma output, and hemodynamics were observed within hours, suggesting a profound impact on overall well-being. This cascade of physiological benefits hints at broader implications in optimizing patient recovery."

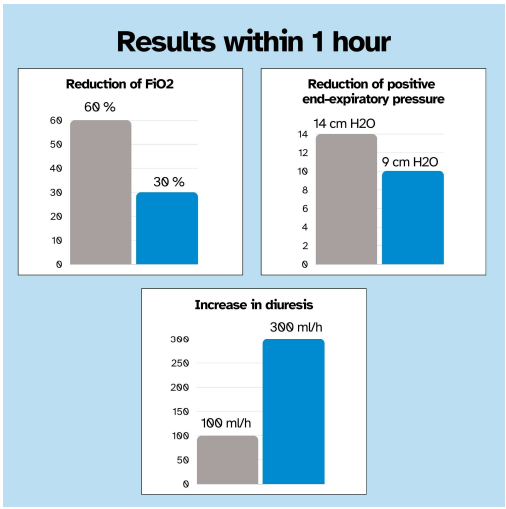

Figure created by fasciotens

- **Overall stabilization of the patient**
- **Successful fascial closure after 6 days of using fasciotens**
- **Increased renal output**
- **Improvement of ventilation parameters**

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Langenbecks Arch Surg 407, 2075–2083 (2022)

Vertical traction device prevents abdominal wall retraction and facilitates early primary fascial closure of septic and non-septic open abdomen

Fung, S., Ashmawy, H., Krieglstein, C. et al.

First retrospective multicenter study on fasciotens®Abdomen showing promising results and demonstrates safety and feasibility of the device.

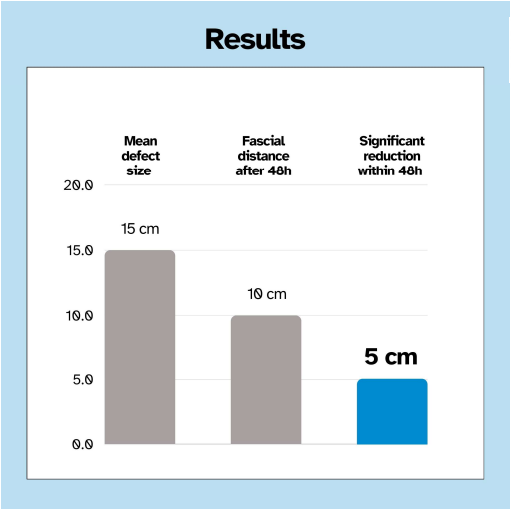

Figure created by fasciotens

- **100% successful early closure**
- **After 48h: Fascial distance significantly reduced**
- **Mean of 7 days for definitive fascial closure**
- **Initial mean fascial dehiscence 15 cm**

fasciotens®Pediatric

Pediatric Surgery International 40, 172 (2024)

Use of a new vertical traction device for early traction-assisted staged closure of congenital abdominal wall defects: a prospective series of 16 patients

Ziegler, AM., Svoboda, D., Lüken-Darius, B. et al.

First multi-center study to explore feasibility and safety of fasciotens®Pediatric device in giant Omphaloceles (GOC) and complex Gastroschisis (GS). The authors conclude that the device enabled an early tension-free closure of the defects.

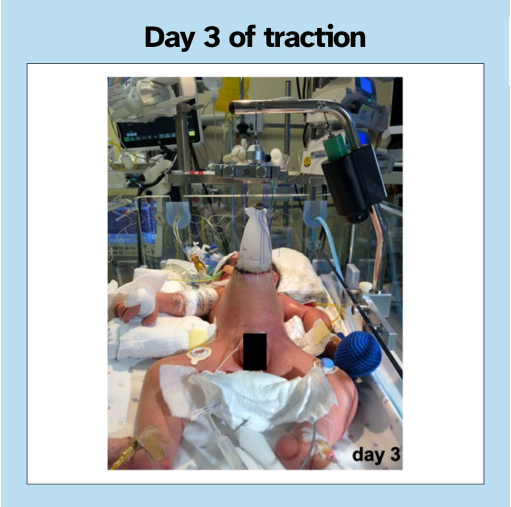

Figure created by fasciotens, picture from publication

- **Traction forces btw. 500g - 1.000g (<50% of the patient's weight) applied**
- **Definitive abdominal wall closure after a median time of 7 days (GOC) / 5 days (GS)**
- **No hernia formation after mean follow-up of 12 months**
- **No device-related adverse events**

Publications about fasciotens®

HERNIA

Barbosa, E., Barone, G., Bertoglio, C.L. et al., 2026: **Laparoscopic application of intraoperative fascial traction (fasciotens®Hernia) during loss of domain scrotal hernia repair: A European multicenter case series with technical details and preliminary results**

Niebuhr, H., Woeste, G., Winkler, C., Behle, S. et al., 2026: **Intraoperative Fascial Traction - From Concept to Comprehensive Application**

Woeste, G., Dascalescu, G., Wegner, F. et al., 2025: **Follow-up of Complex Hernia Repair with Intraoperative Fascial Traction**

Marques-Antunes, J. et al., 2025: **Complex Abdominal Wall Hernias: Structured Use of Adjuvant Therapies**

Gök, H., 2025: **Case Report: Intraoperative Fascial Traction for Increasing Intra-Abdominal Volume in Loss-of-Domain Incisional Hernias: A Report of Two Cases**

Groß, S., Mucke, M., Rudolph, M., Arango Galvis, V., 2025: **Osterix im Land der Hernien**

Balachandran P., et. al., 2025: **Botulinum toxin and fasciotens in the management of complex ventral hernia: a case report**

Niebuhr, H., Wegner, F., Dag, H. et al., 2024: **Preoperative botulinum toxin A (BTA) and intraoperative fascial traction (IFT) in the management of complex abdominal wall hernias**

Niebuhr et. al., 2024**: Assessment of myofascial medialization following intraoperative fascial traction (IFT) in a cadaveric model**

D. Eucker, R. Rosenberg, 2023**: „Loss of domain" und Verringerung der medianen Nahtspannung**

De Matteis, A. et al., 2023: **From damage control surgery to complex abdominal wall reconstruction It is possible even in the elderly in a Spoke Center?**

Gorjanc, J. et. al., 2023: **The use of intraoperative fascial traction in W3-incisional hernia repair: A revolution or an emergency exit (two case reports)**

Niebuhr, H., Malaibari, Z.O., Köckerling, F. et al., 2022: **Intraoperative fascial traction (IFT) for the treatment of large ventral hernias**

Bloemendaal A. L. A., 2022: **Intraoperative Fascial Traction in Robotic Abdominal Wall Surgery; An Early Experience**

Romain, B., Sauvineta, G., Rebierea, T., 2022: **A complex incisional hernia repair with Intraoperative Fascial Traction device (with video)**

H. Niebuhr et. al., 2021: **Intraoperative Fascia Tension as an Alternative to Component Separation. A Prospective Observational Study**

OPEN ABDOMEN

Ioannidis, O., Brenta, A., Theodorou, A., et al., 2025: **Early results from the use of an innovative vertical fascial traction system for the management of patients with open abdomen**

Thais, R.M., Aditya, B., 2025: **Use of a Vertical Traction Device in the Management of an Open Abdomen: A Case Report**

Dohmen, J., Weissinger, D., Peter, A.S.T., Theodorou, A., Kalff, J.C., Stoffels, B., Lingohr, P., von Websky, M., 2024: **Evaluating a novel vertical traction device for early closure in open abdomen management: a consecutive case series**

Mones, T. et al. 2024: **Vertical Mesh-Mediated Fascial Traction and Negative Pressure Wound Therapy: A Case Series of Nine Patients in General and Vascular Surgery**

Nguyen, P., Ramana Balasubramaniam, 2024: **AbThera, Botox, and Fasciotens: A Trifecta in Open Abdomen Management**

Mavc, Z., Kunst, G., 2023: **Fasciotens®Abdomen system application for delayed primary fascial closure and observed physiological improvement of the patient**

Fung, S., Ashmawy, H., Krieglstein, C. et al., 2022: **Vertical traction device prevents abdominal wall retraction and facilitates early primary fascial closure of septic and non-septic open abdomen**

Halama, T., Nazzal, R., Nowroth, T., 2020: **Fasziendehnung zum Bauchverschluss nach perforiertem Bauchaortenaneurysma**

Hees, A., Willeke, F., 2020: **Prevention of Fascial Retraction in the Open Abdomen with Novel Device**

Gombert, A., Eickhoff, R., Doukas, P. et al., 2020: **Vollständiger Bauchdeckenverschluss bei offenem Abdomen nach notfallmäßiger komplexer Aortenrekonstruktion bei „mid-aortic syndrome" durch Anwendung von Fasciotens Abdomen® im Fall eines 16-jährigen Patienten**

Eickhoff, R. et al., 2019: **A new device to prevent fascial retraction in the open abdomen – proof of concept in vivo**

Fung, S. et. al., 2019: **Fasciotens© Abdomen ICU: Novel Device Prevents Abdominal Wall Retraction and Facilitates Early Abdominal Wall Closure of Septic Open Abdomen**

PEDIATRIC

Ziegler, AM., Svoboda, D., Lüken-Darius, B. et al., 2024: **Use of a new vertical traction device for early traction-assisted staged closure of congenital abdominal wall defects: a prospective series of 16 patients**

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Scan for all open abdomen publications:

Scan for pediatric publications:

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