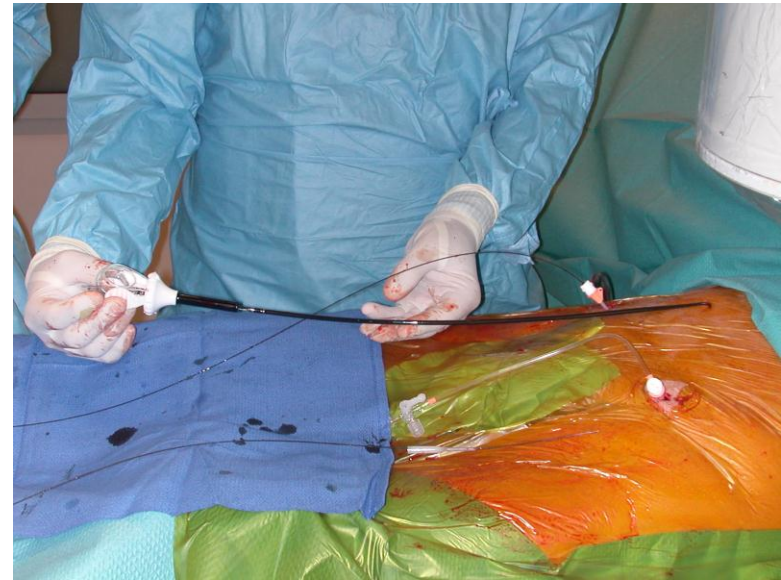


# **Percutaneous closure devices: technique and literature review**

**E. Jean Baptiste, R. Hassen-Khodja  
(Nice, France)**

**CRITICAL ISSUES  
in aortic endografting 2012  
Lille, May 25<sup>th</sup>**



# Why a percutaneous vessel closure?

---

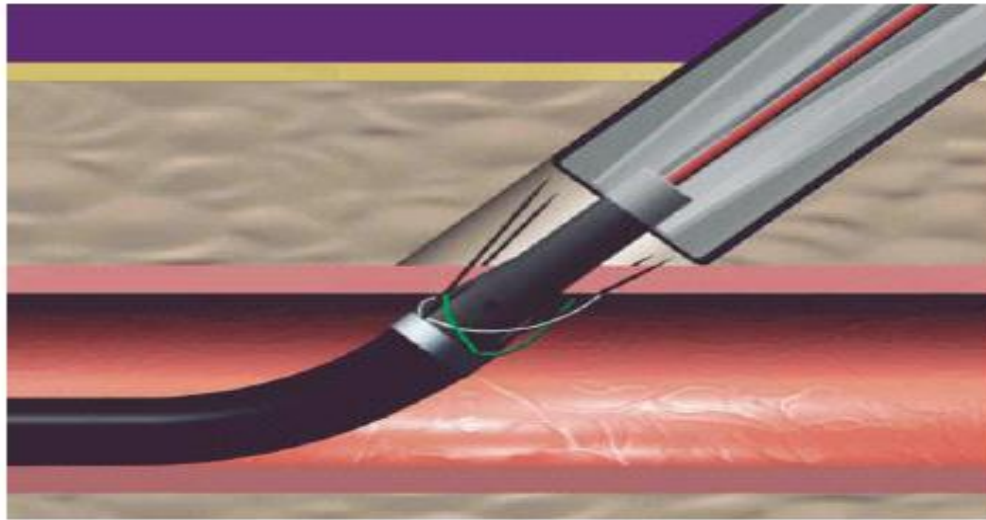
- Principle : totally percutaneous approach
- Expectations :
  - ↘ local complications
  - ↘ length of the hospital stay
  - ↘ cost
- *Technical experience of Prostar XL*
- *Literature review*

# TECHNIQUE

---

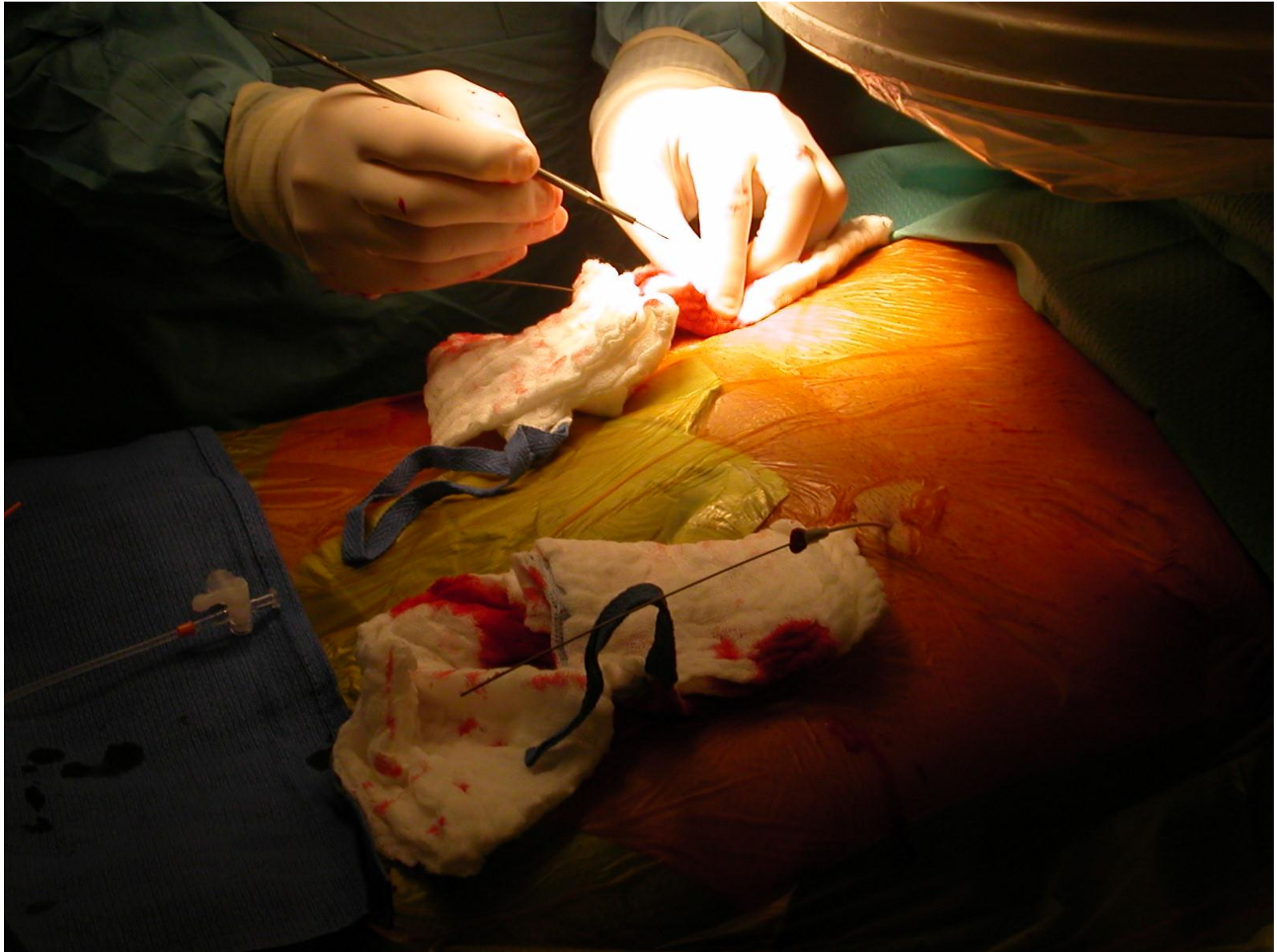
- « Preclose technique »
- Learning curve +++
- In case of technical failure, stressful situation
- Patient selection

# MATERIAL : Prostar XL<sup>®</sup> (Abbott)





# ***Femoral puncture***

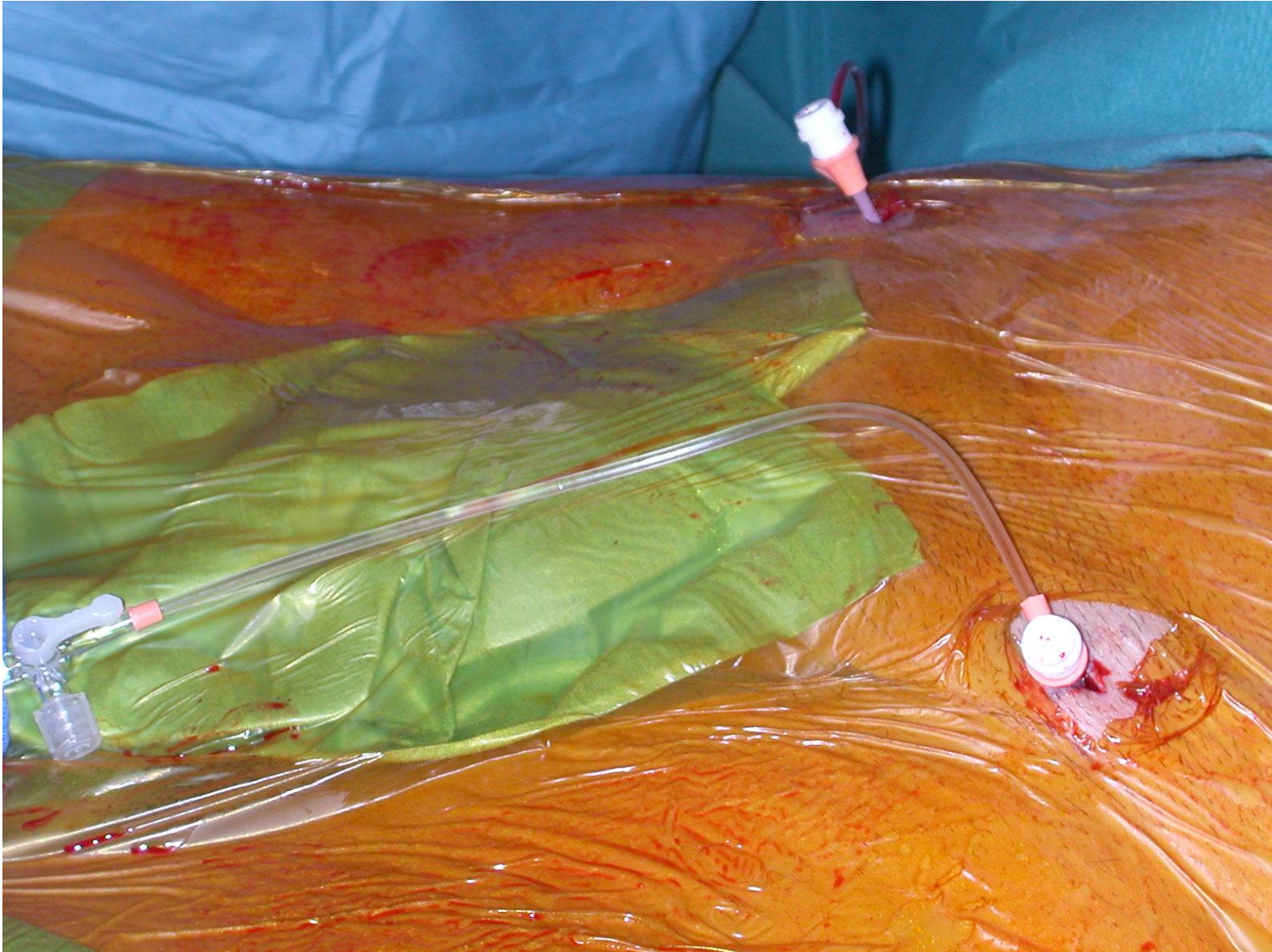


# ***Subcutaneous tunnel***



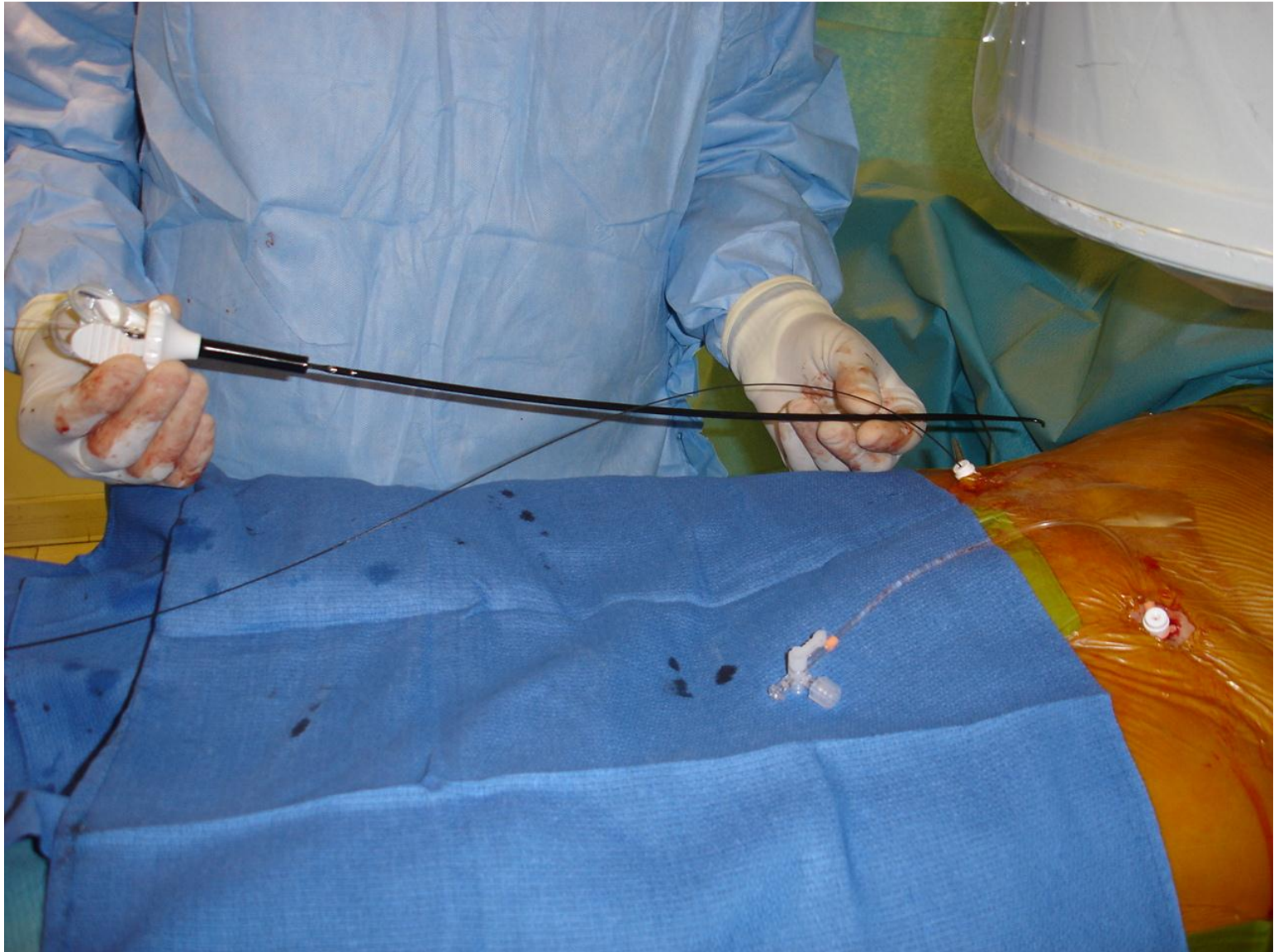


# ***7F introducer sheath***





# ***The Prostar XL<sup>®</sup> device (Abbott)***

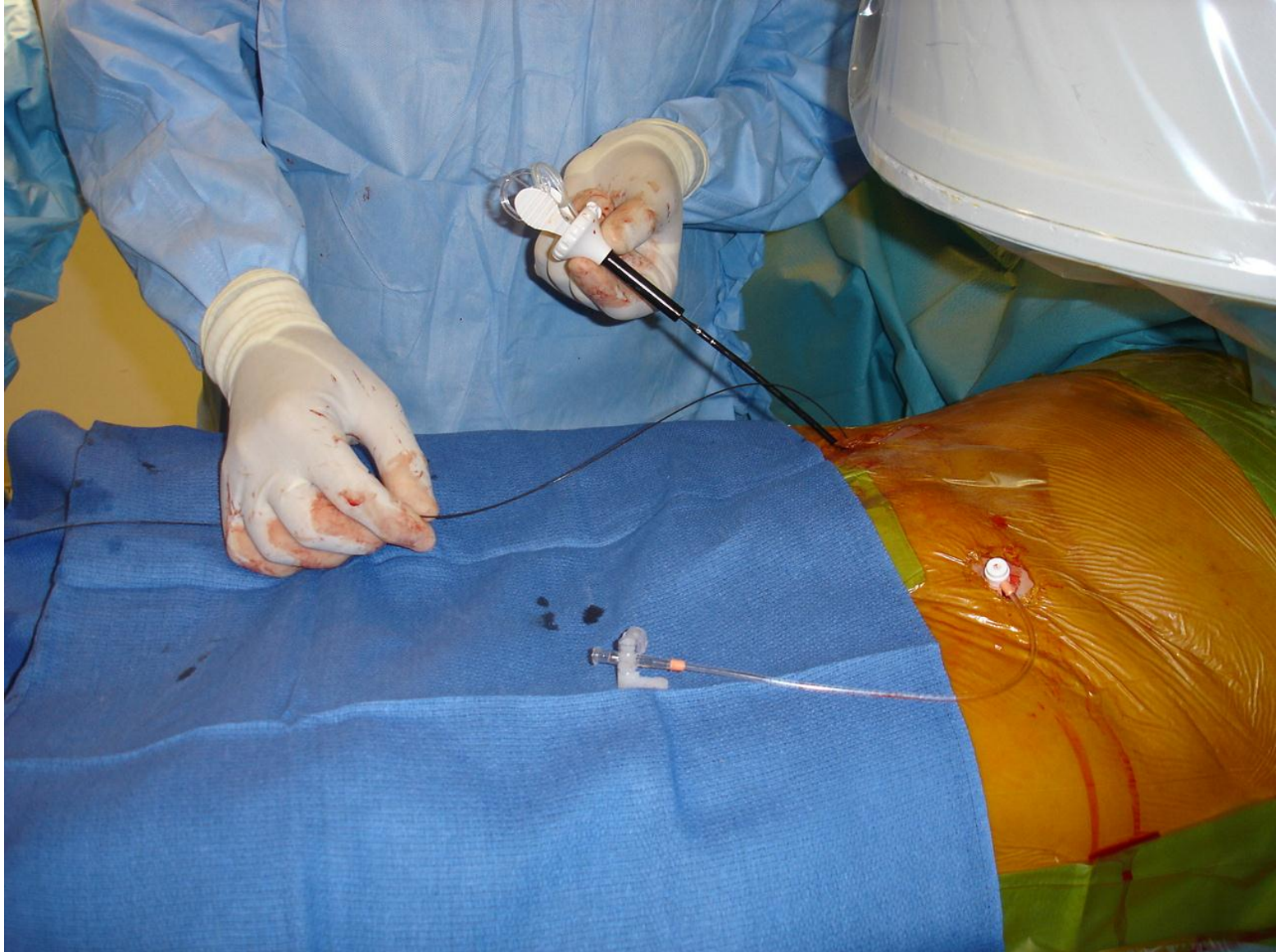


# ***The Prostar XL<sup>®</sup> device (Abbott)***



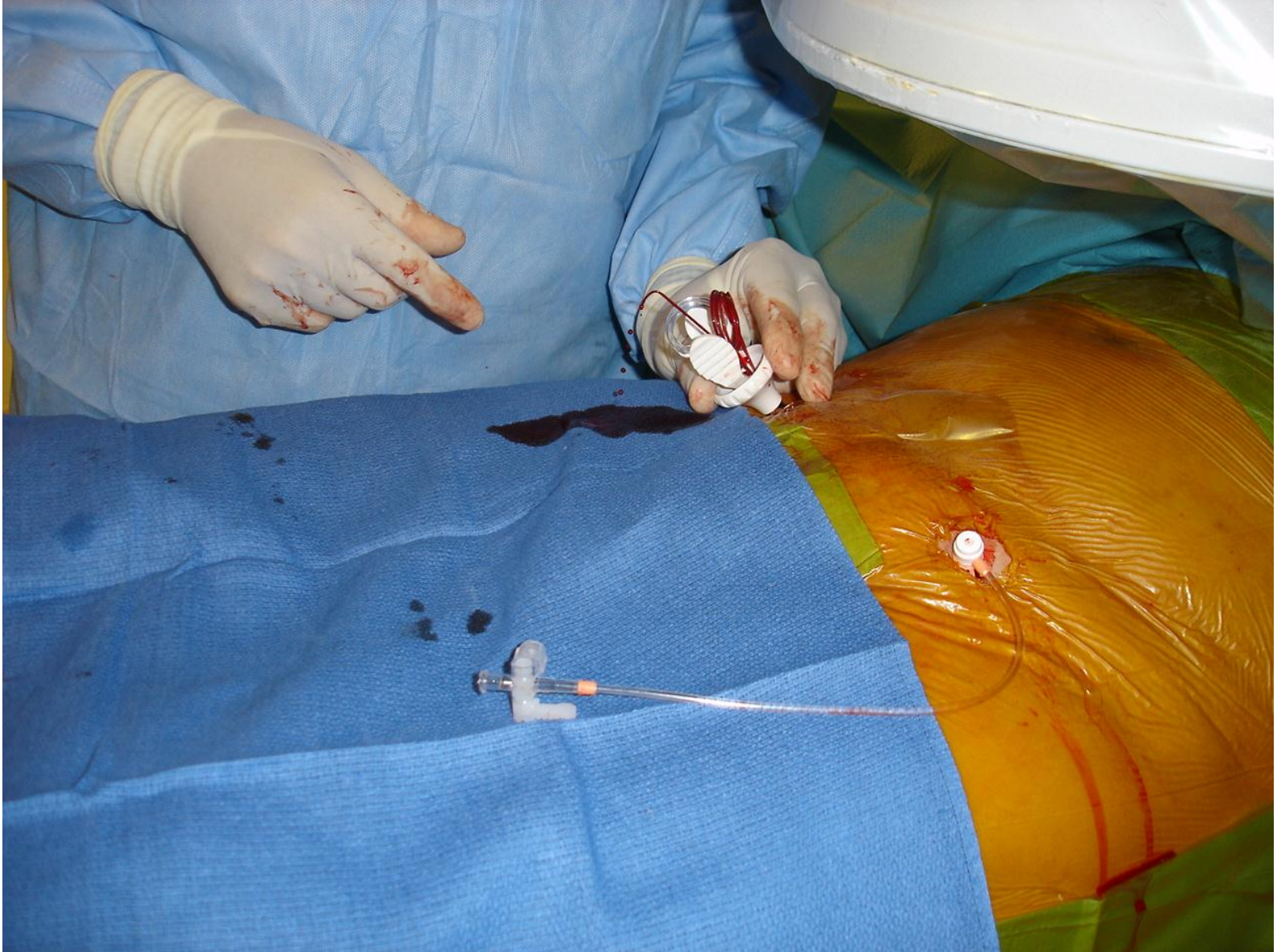


***the guidewire is removed***



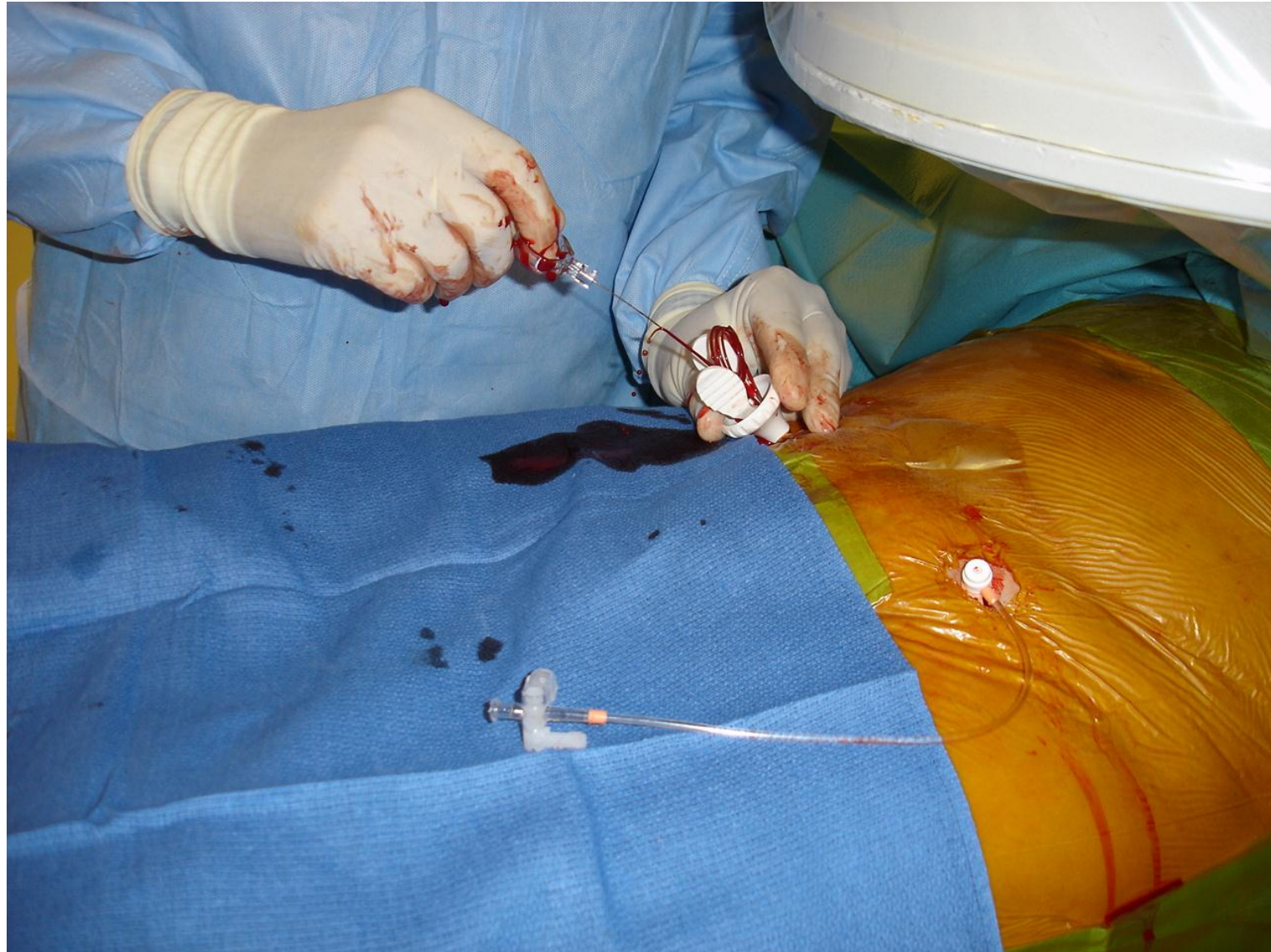


# ***Arterial flush, Prostar in place***



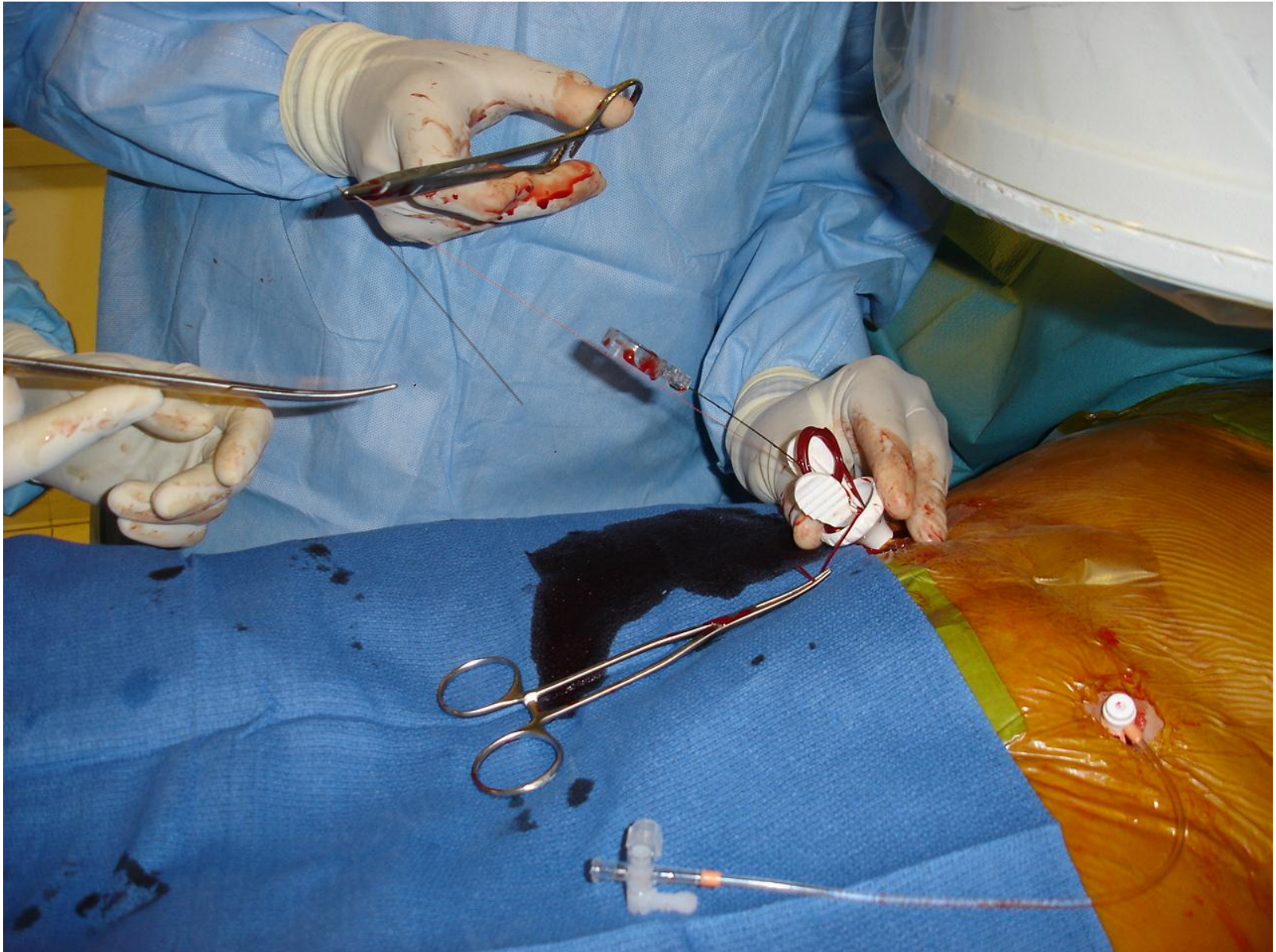


# ***Withdrawal of the needles***



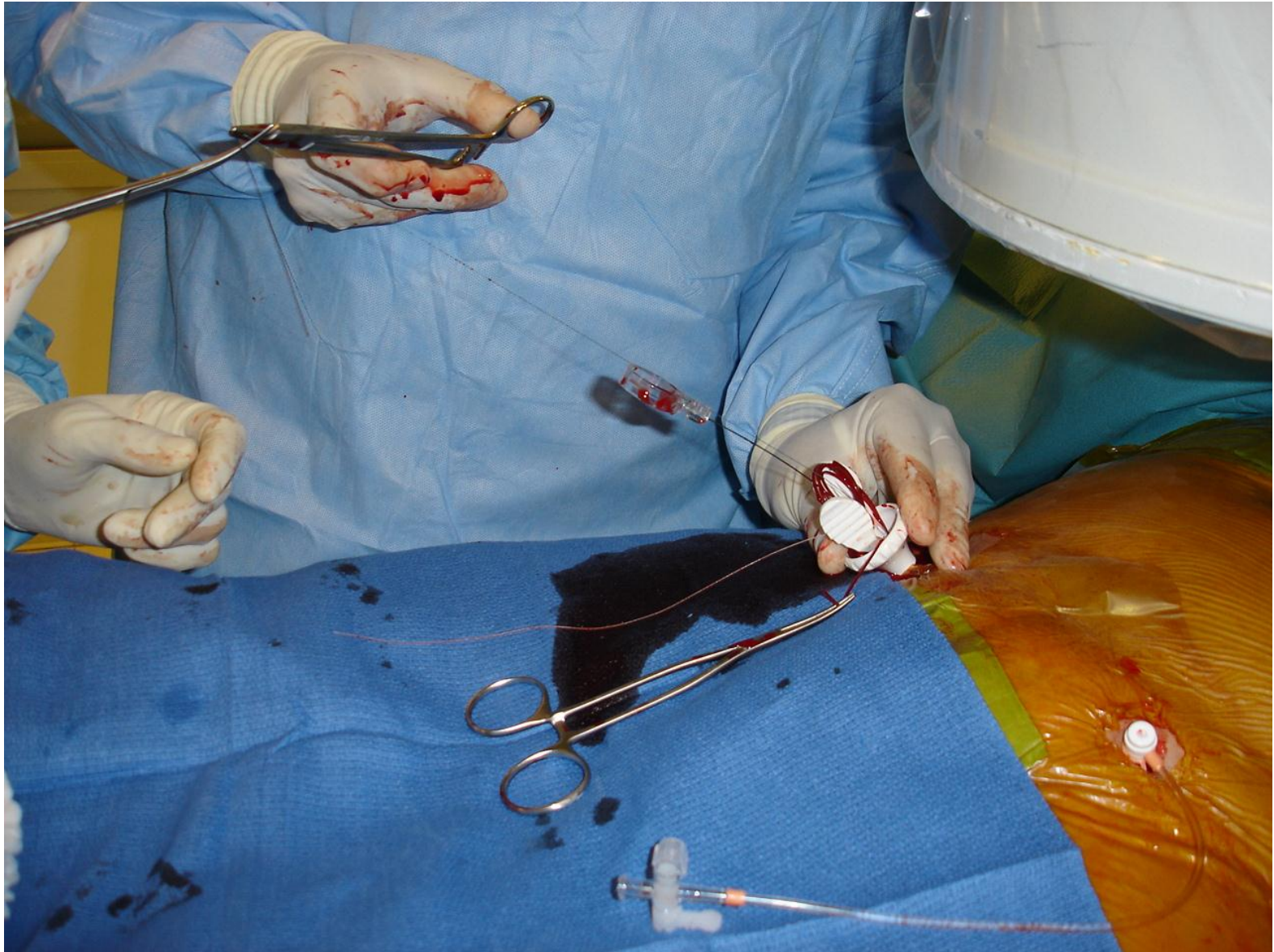


# ***White thread***



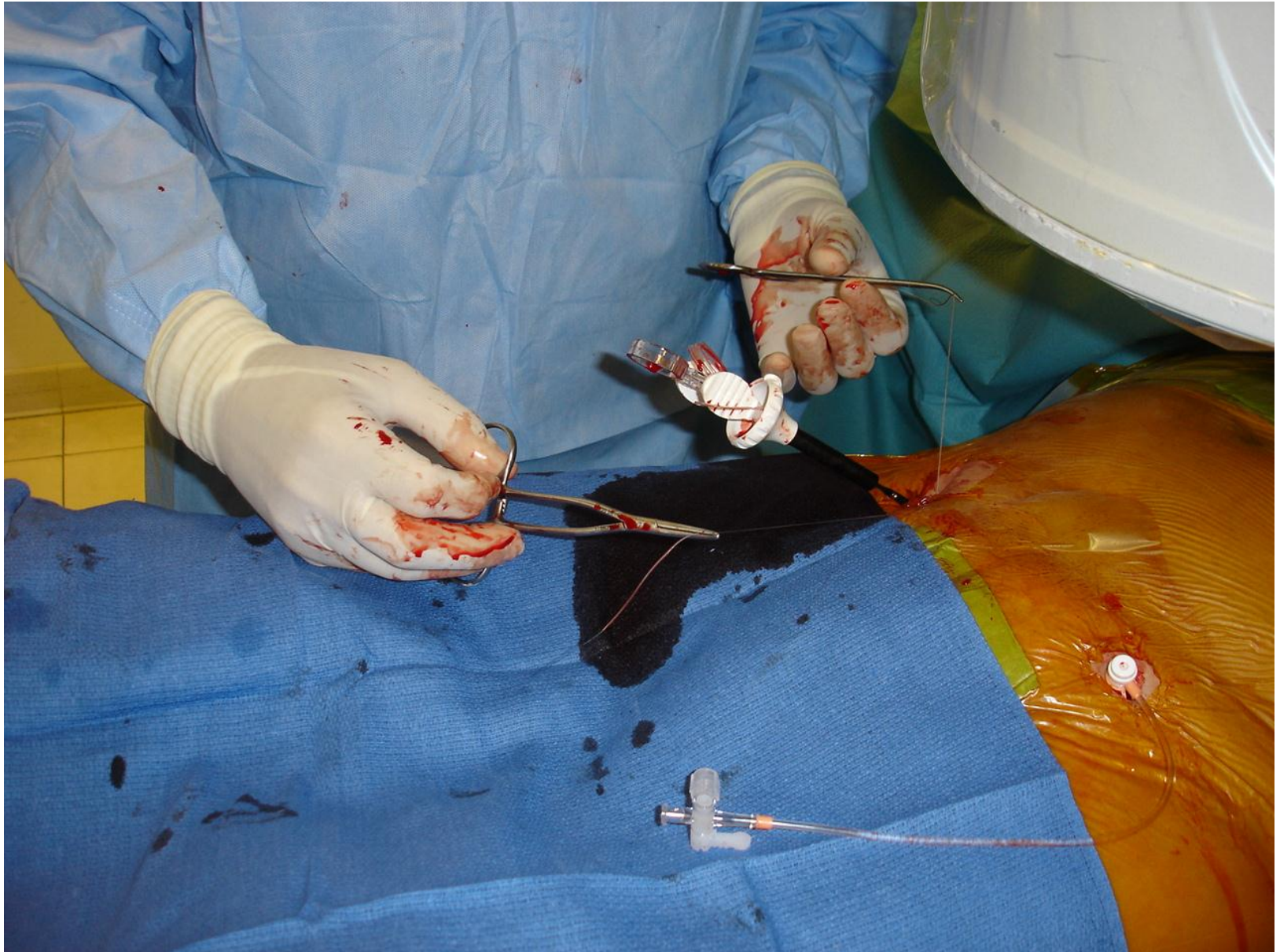


# ***Green thread***





# ***Marking strands***

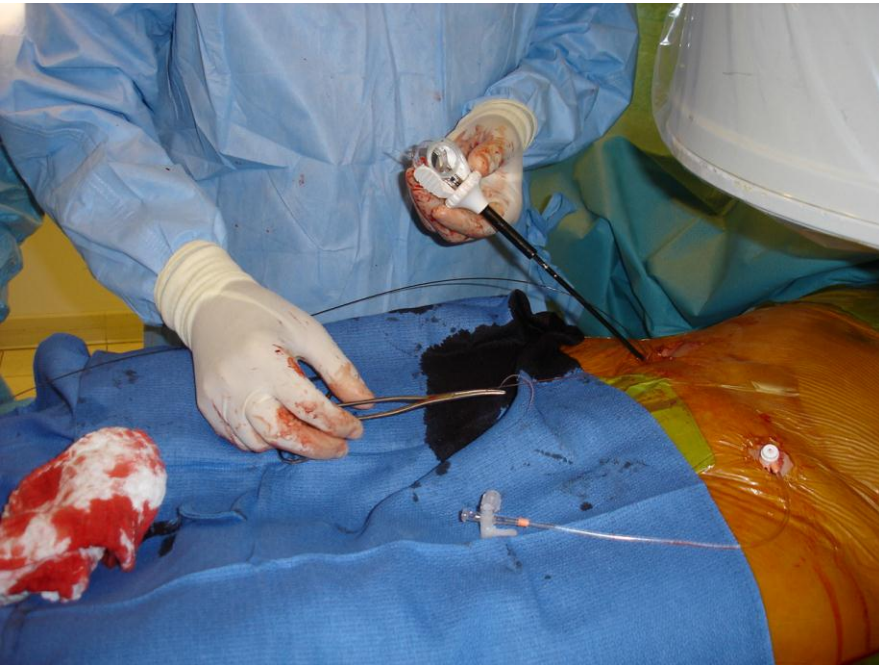




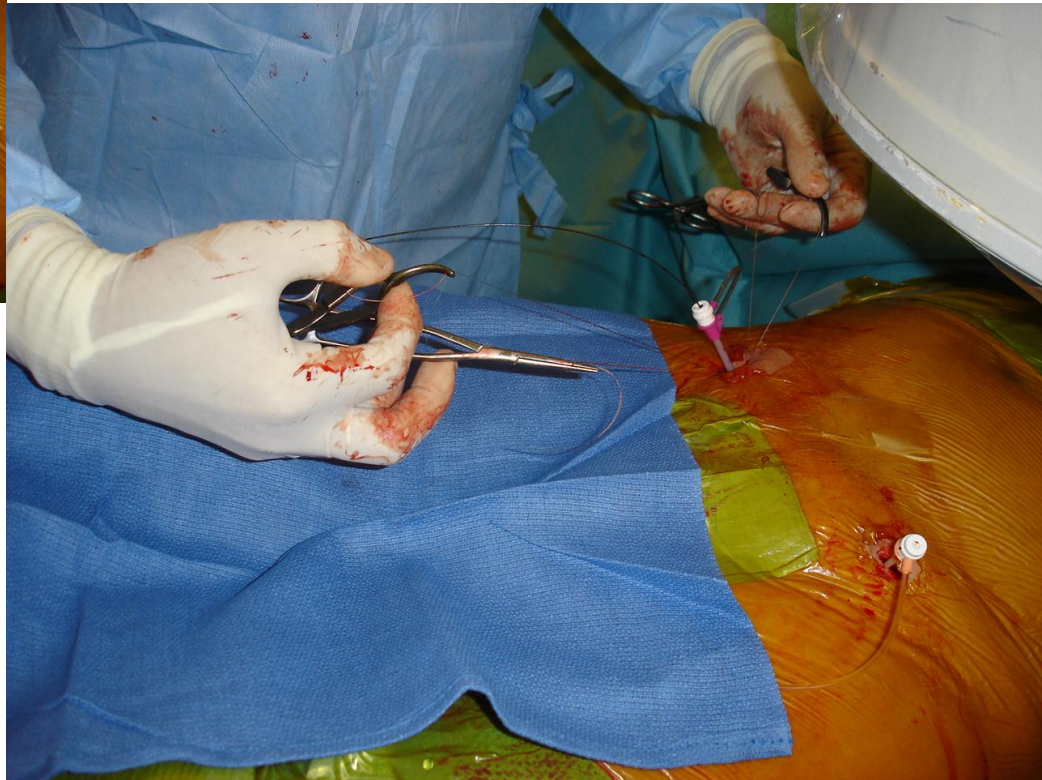
# ***Prostar device removed (guidewire in place)***



# **2<sup>nd</sup> Prostar**

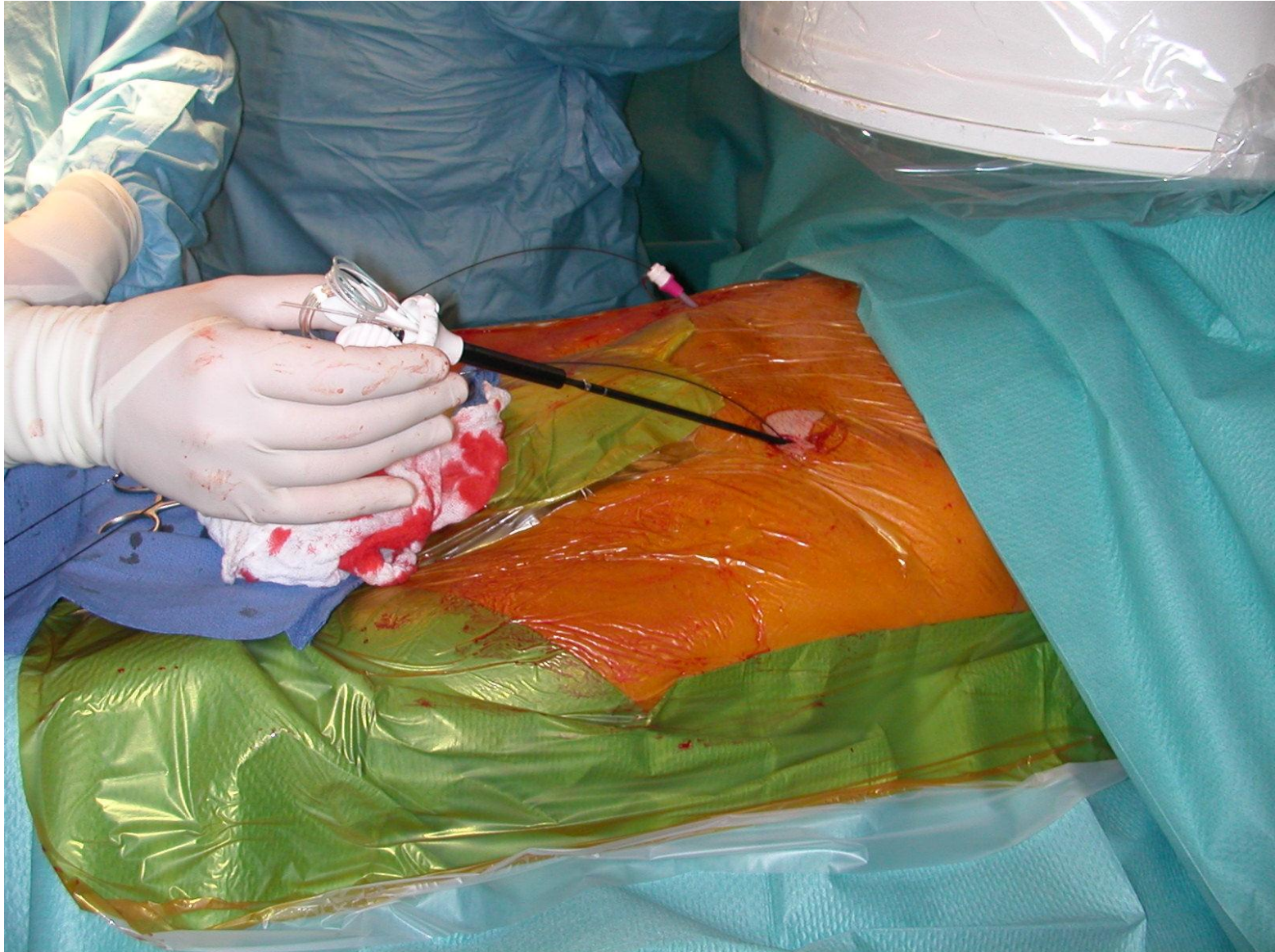


***Location of the 4 threads***



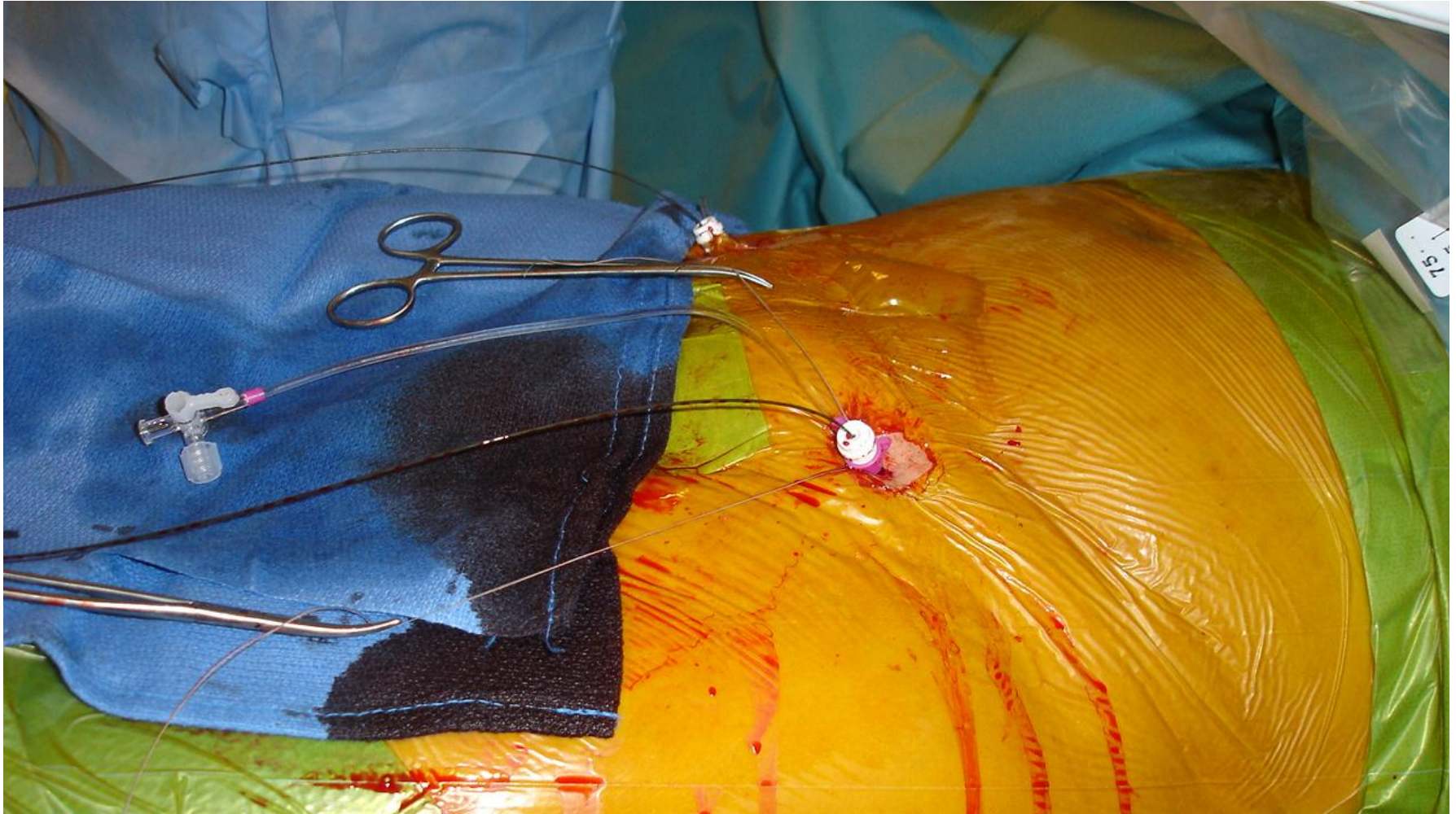


# ***Contralateral Prostar***

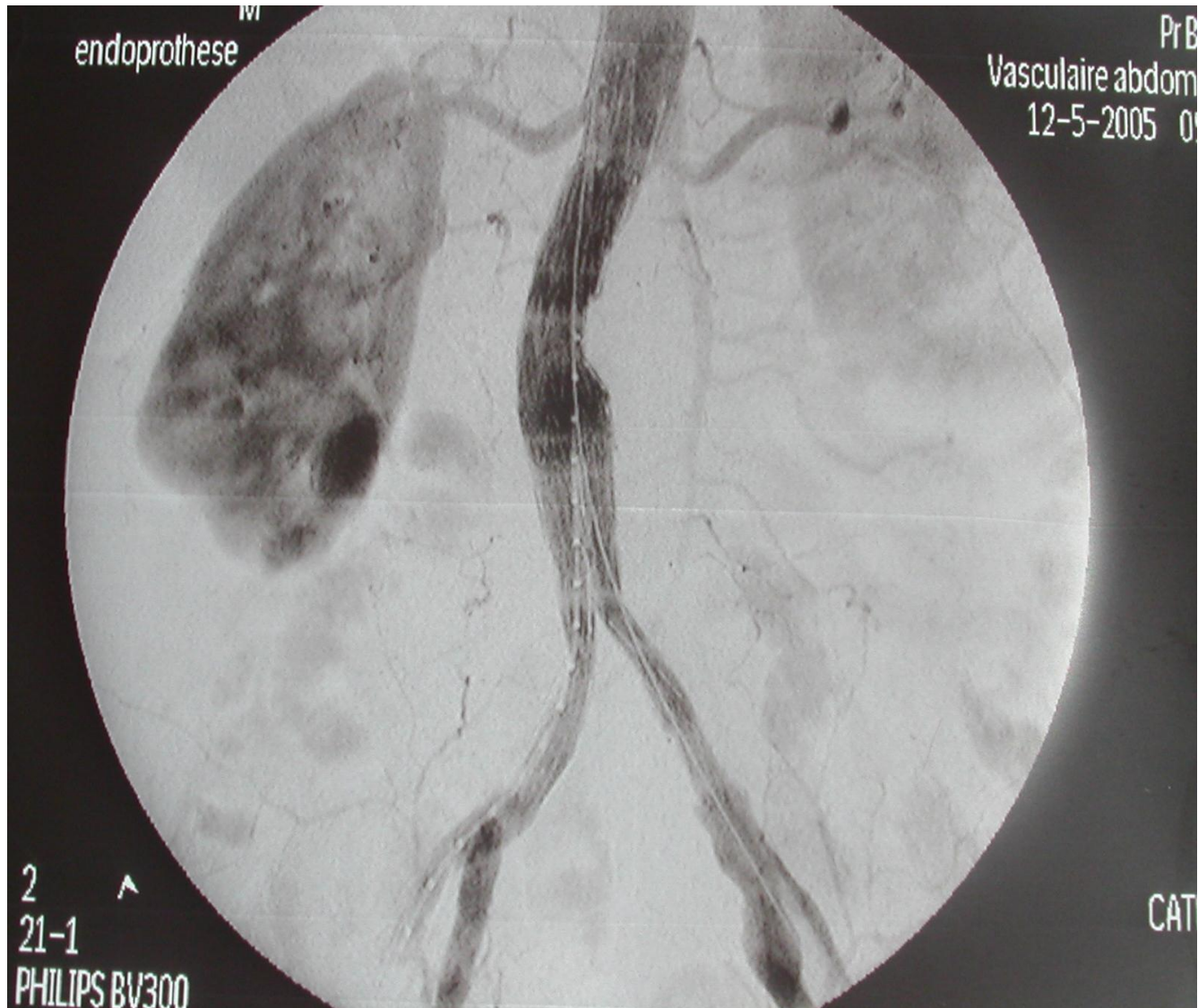




***On both sides, 10F sheath***



# ***EVAR procedure***





# ***Knots tied***

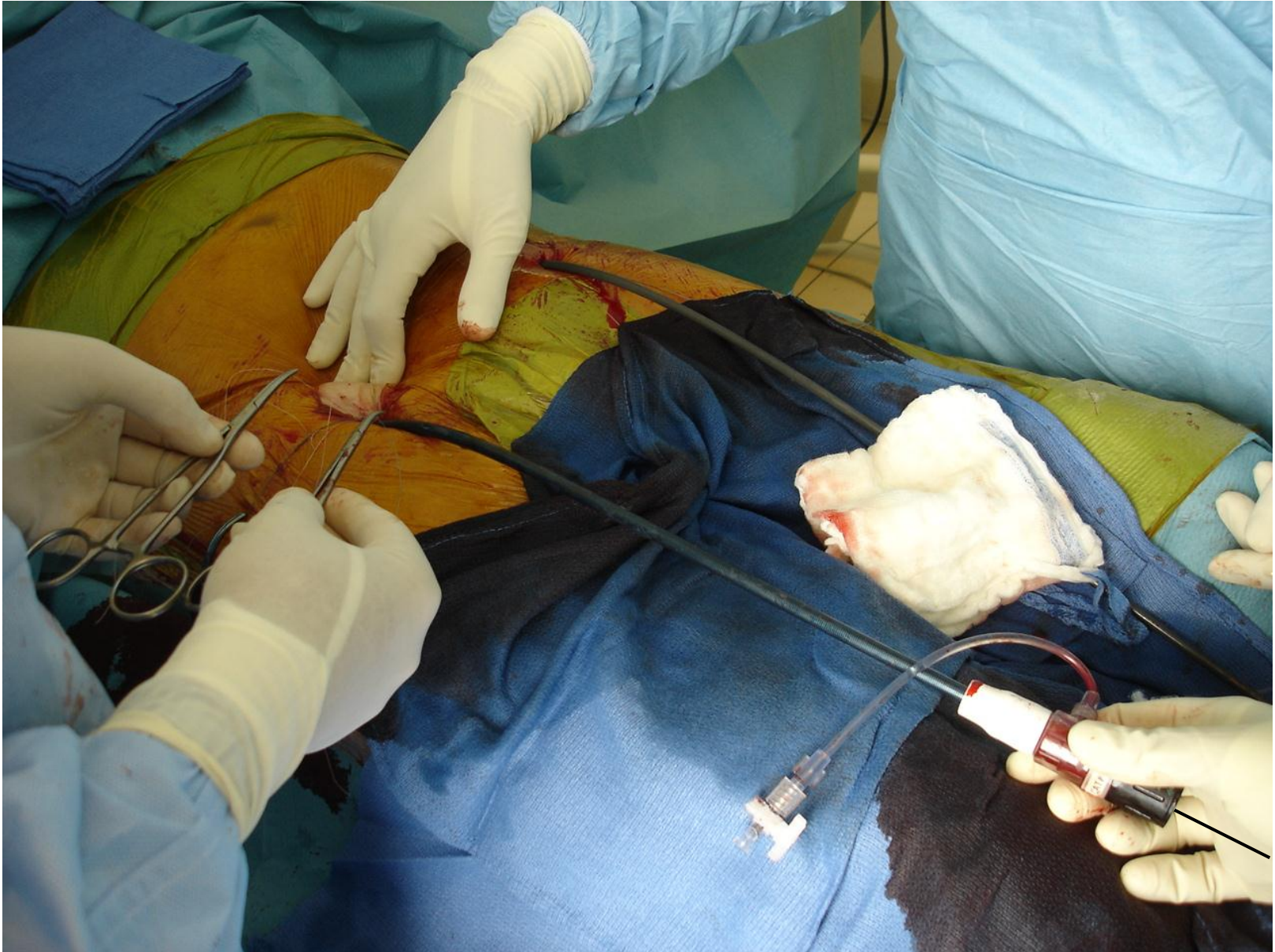


# ***Making the knots***





# ***Delivery system removed***



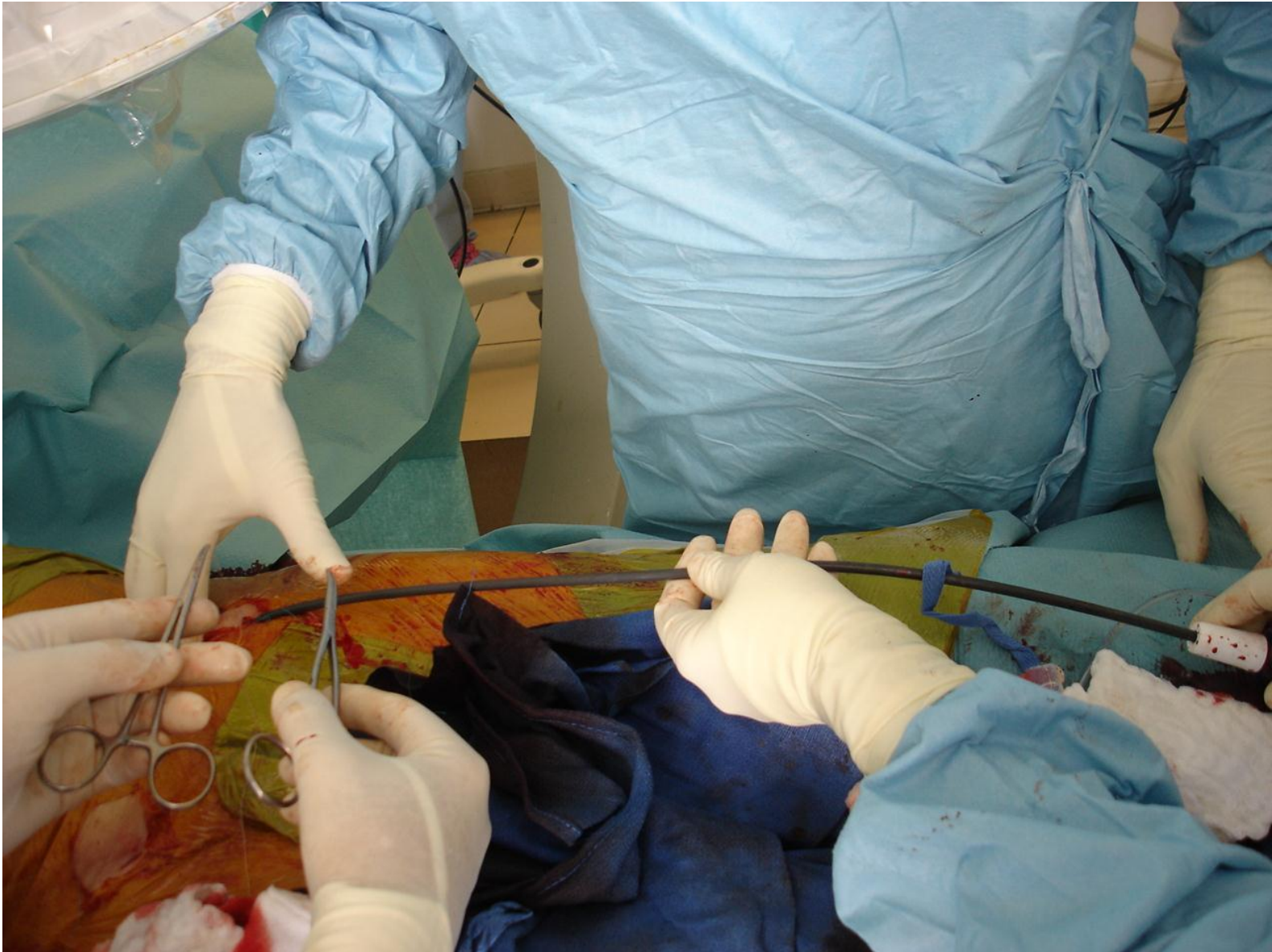


# ***Knots locked (knot pusher)***





# ***Withdrawal of the delivery system***

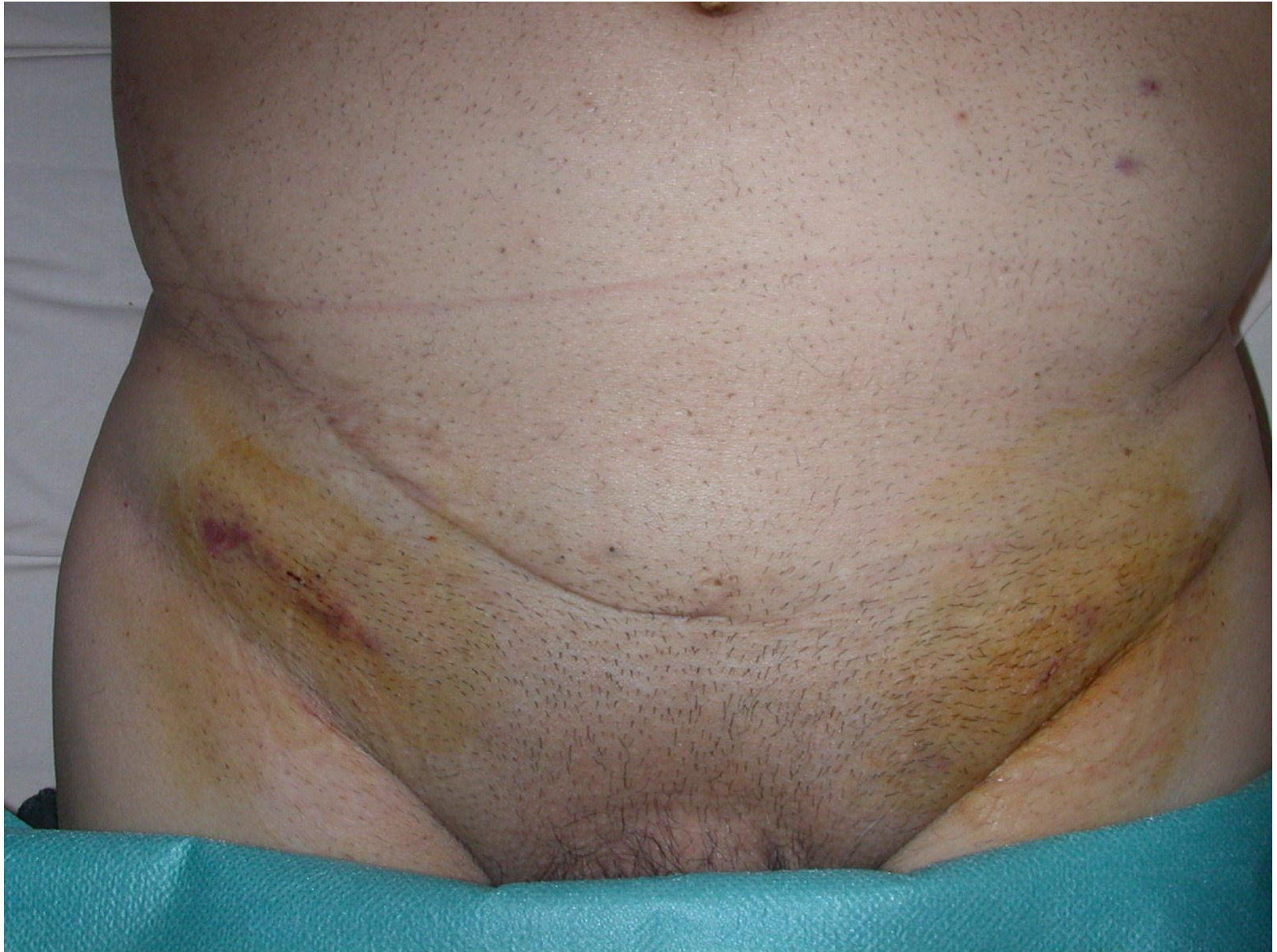


# ***Final result***





## ***Result at D2***



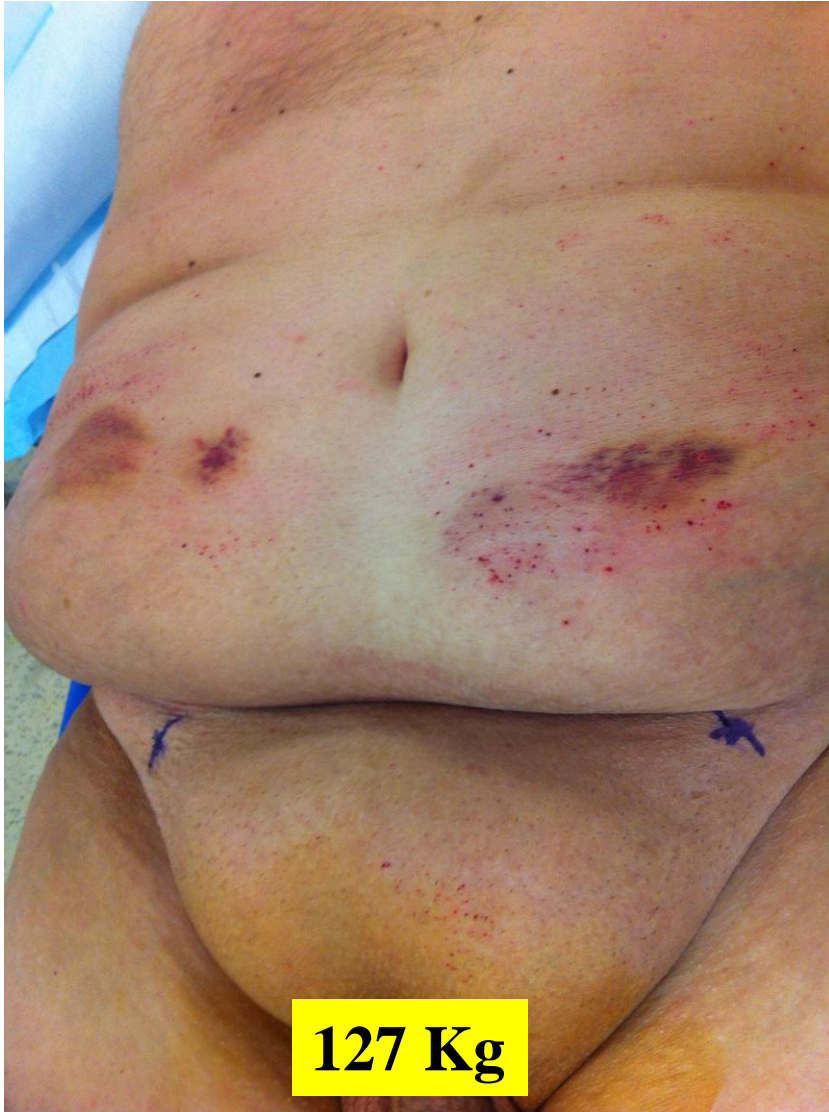


# Results





# ***Result (obese patient)***



# literature review

---

- Mostly retrospective, nonrandomised studies
- Selected groups of patients, heterogeneity

*The results of the literature should be interpreted with caution*

- 2 recent reviews of the literature:
  - Malkawi, EJVES 2010
  - Haulon, EJVES 2011



## REVIEW

# Percutaneous Access for Endovascular Aneurysm Repair: A Systematic Review

A.H. Malkawi, R.J. Hinchliffe\*, P.J. Holt, I.M. Loftus, M.M. Thompson

- 22 studies, 1087 patients
- Success rate: 92%, complication rate: 4%





ELSEVIER



REVIEW

# **A Systematic Literature Review of the Efficacy and Safety of the Prostar XL Device for the Closure of Large Femoral Arterial Access Sites in Patients Undergoing Percutaneous Endovascular Aortic Procedures**

**CME**

S. Haulon <sup>a,\*</sup>, R. Hassen Khodja <sup>b</sup>, C.W. Proudfoot <sup>c</sup>, E. Samuels <sup>c</sup>

➤ **21 studies, Success rate: 91%**

# **literature review (summary)**

---

- **Prostar XL is as safe and effective as surgical cut-down**
- **Considerable limitations in the evidence base**
- **Reduction in total operative time (statistically significant)**
- **Reduction in time to ambulation, to discharge, in length of stay, and potentially in costs (not statistically significant)**

# ***Technical failures (literature review)***

<b>Author</b>	<b>Traul</b>	<b>Teh</b>	<b>Torsello</b>	<b>Watelet</b>	<b>Starnes</b>	<b>Lee</b>	<b>Our series</b>
<b>Obesity</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>Device</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>2</b>
<b>Femoral calcifications</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>
<b>Iliac tortuosity</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Puncture site</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>1</b>
<b>Fibrosis</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Introducer size</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>
<b>Other</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>
<b><i>Total</i></b>	<b>11/30</b>	<b>12/82</b>	<b>2/30</b>	<b>8/47</b>	<b>5/79</b>	<b>16/279</b>	<b>3/38</b>

***E. Jean Baptiste, Eur J Vasc Endovasc Surg 2008***



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## Unselected Percutaneous Access with Large Vessel Closure for Endovascular Aortic Surgery: Experience and Predictors of Technical Success

M.J. Metcalfe\*, J.R.W. Brownrigg, S.A. Black, T. Loosemore, I.M. Loftus, M.M. Thompson

- **non-selected, 186 common femoral a., Success rate: 95%**
- **Shorter procedures, decreased lengths of stay**
- **Operator experience was the only predictor of technical success**

# ***CONCLUSION***

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- **Evidence for reduced operative time**
- **A technology which allows local anesthesia, out patient**
- **Learning curve, experience +++**
- **More controlled studies are needed**