

# 那須IVR 2013.11.16

自治医科大学放射線医学教室 河合陽、中村仁康、木島茂喜、杉本英治

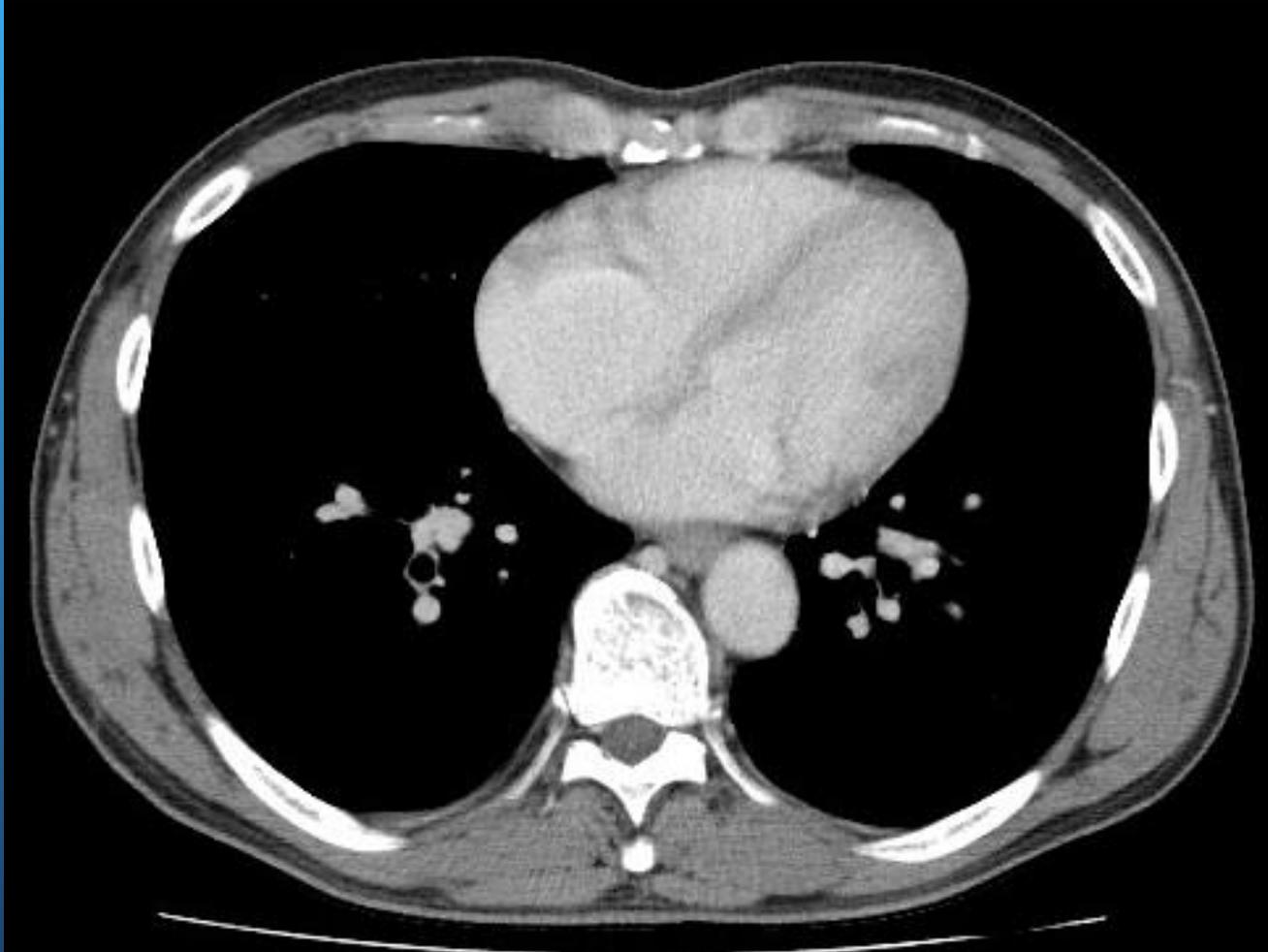


骨盤内AVFにamplatzer vascular plugで  
塞栓を行った1例

# 症例

- 52歳男性
- 2年前：呼吸困難および左下腿の浮腫で発症した左ない腸骨動脈瘤破裂、左腸骨静脈穿破に対して緊急手術。
- 術後もAVFが残存。徐々に左下腿浮腫が増悪。加療の方針となった。

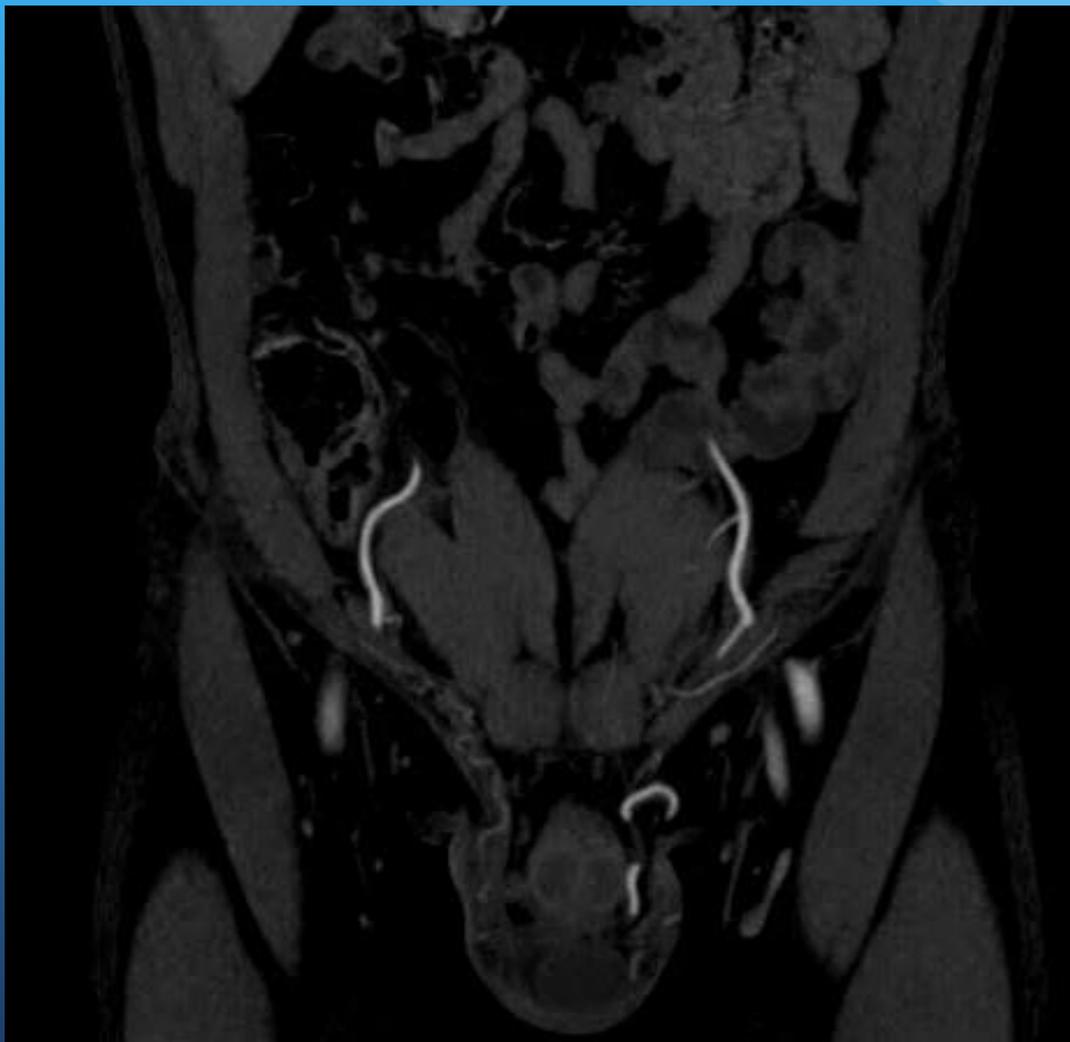
# 緊急手術前CT



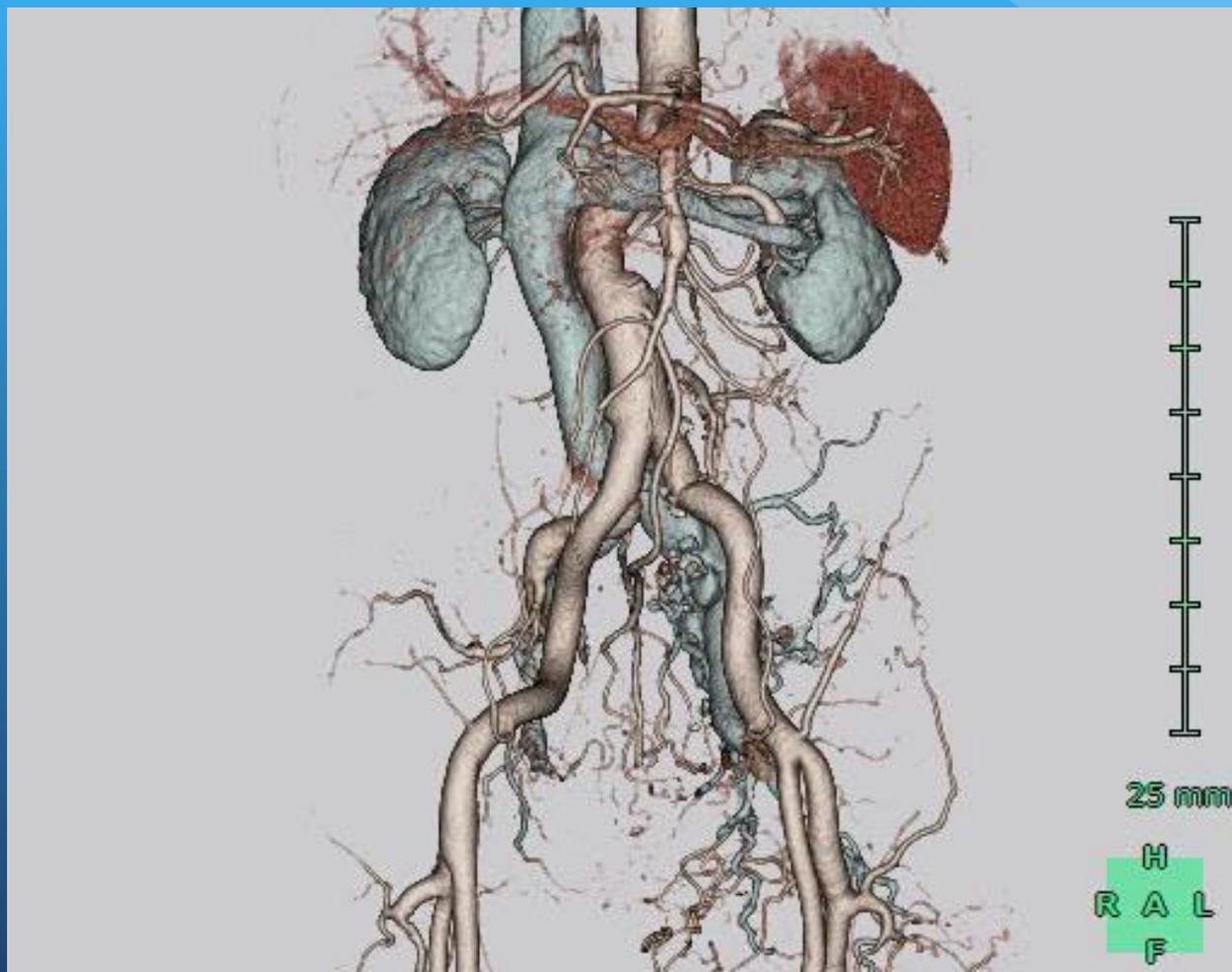
# 術後、血管造影前CT



# 術後、血管造影前CT



# 術後、血管造影前CT



# 術前診断

- 骨盤内AVF：残存IIA-IV

- ✓ 動脈側の流入路は multi.
- ✓ 静脈側の排血路は single ?
- ✓ high flow ?

- 動脈側からshunting pointに辿り着けるかは不明。
- 静脈側からは比較的simpleな経路。

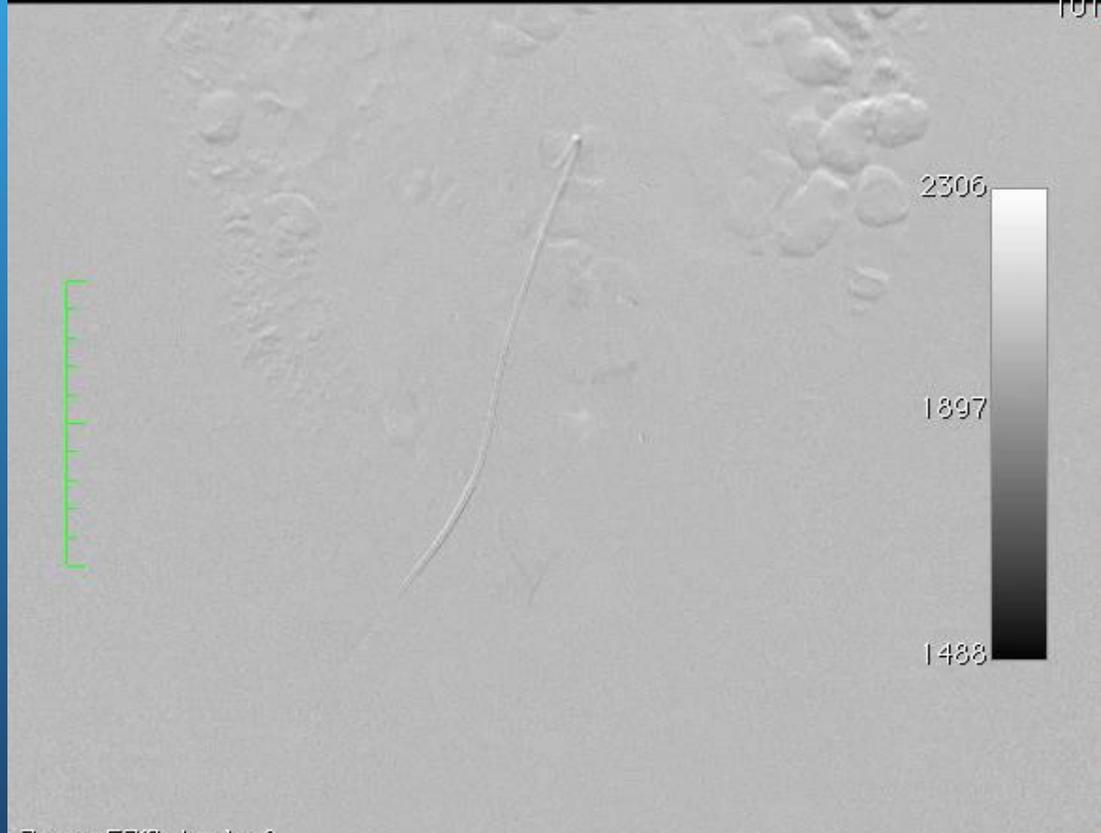
# 治療方針

- 再手術/結紮は不可能
  - ✓ 文献上の周術期死亡率は～34%：失血死  
EJVES Extra 8, 116-118 (2004)
- shunting pointの塞栓が必要
- 経動脈的アプローチが可能か？
- 経静脈的に塞栓可能か？
- balloon assistが必要？

# 血管造影@jichi

Image size: 1024 x 1024  
View size: 587 x 587  
WL: 1897 WW: 819

03883972 ( 52 y , 52 y )  
MSA — MSA  
1307290098301  
101

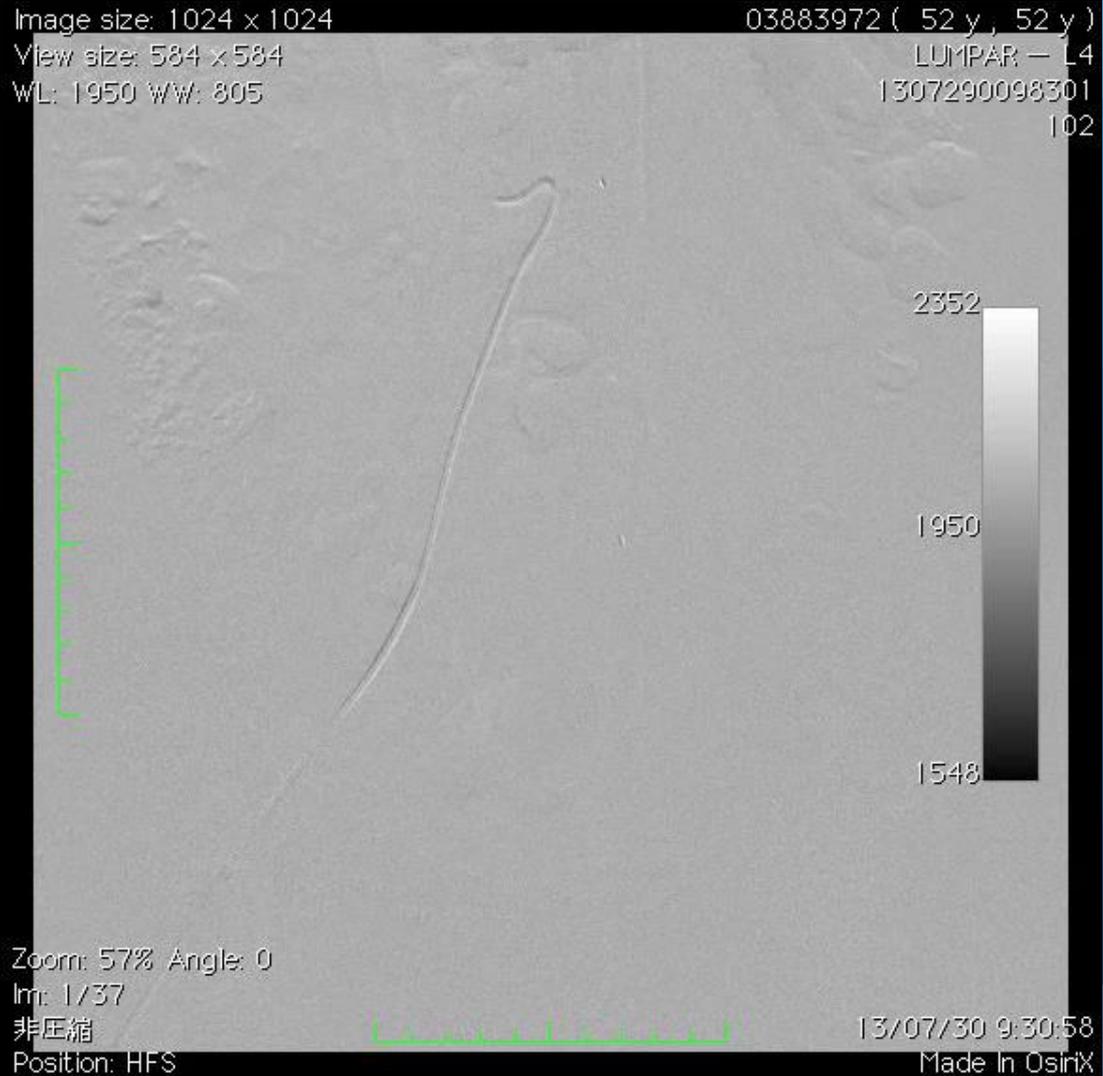


Zoom: 57% Angle: 0  
Im: 1/42  
非壓縮  
Position: HFS



13/07/30 9:27:22  
Made In OsiriX

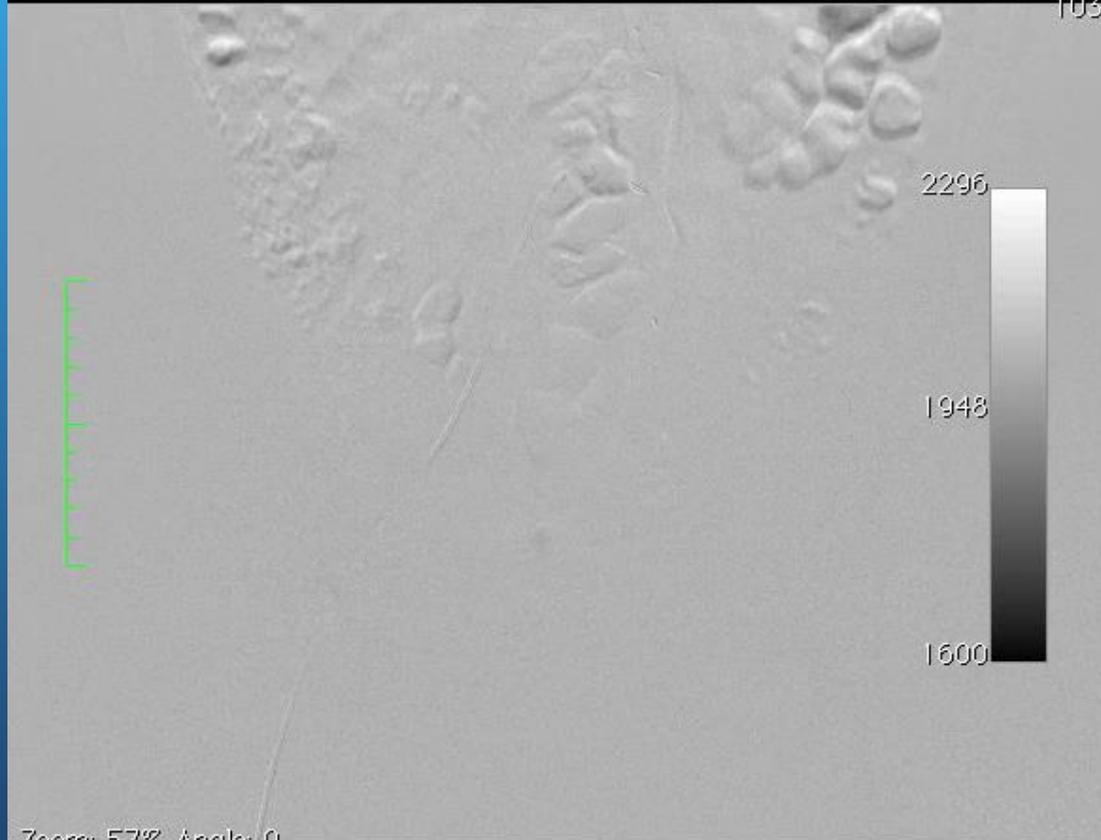
# 血管造影@jichi



# 血管造影@jichi

Image size: 1024 x 1024  
View size: 584 x 584  
WL: 1948 WW: 696

03883972 ( 52 y , 52 y )  
Rt IIA — Rt IIA  
1307290098301  
103



Zoom: 57% Angle: 0  
Im: 1/37  
非压缩  
Position: HFS

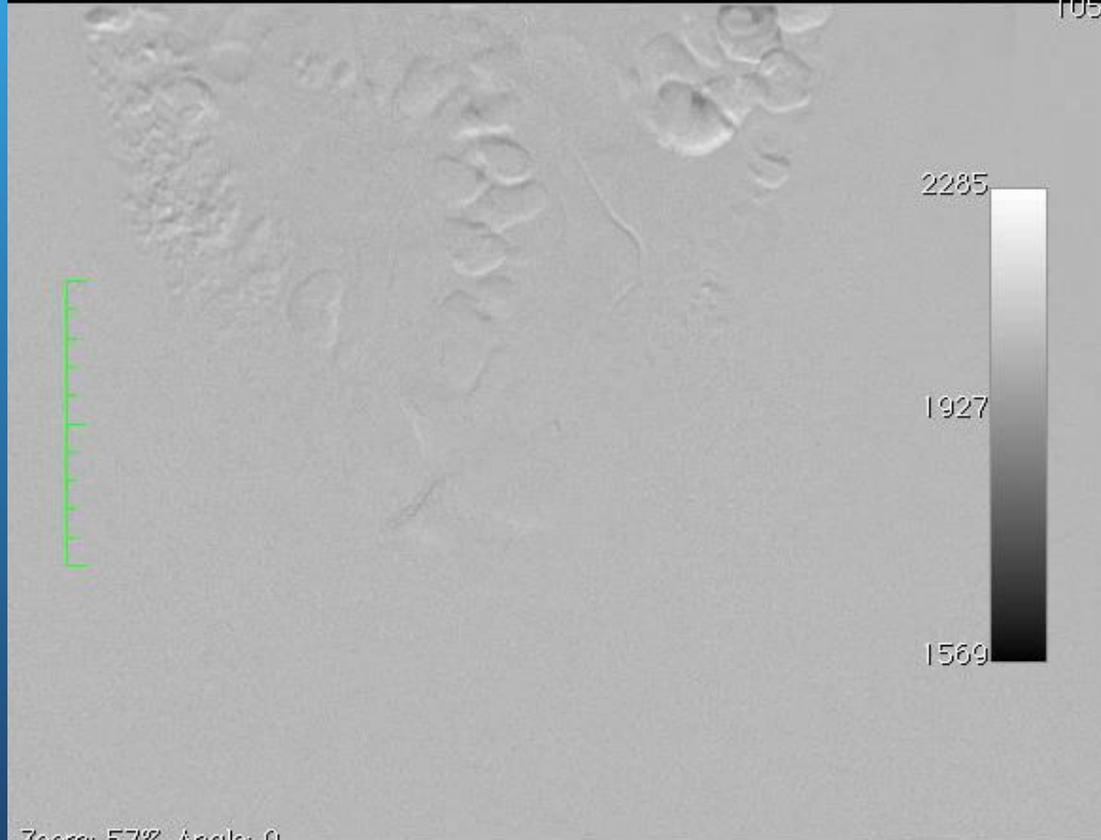


13/07/30 9:34:02  
Made In OsiriX

# 血管造影@jichi

Image size: 1024 x 1024  
View size: 584 x 584  
WL: 1927 WW: 716

03883972 ( 52 y , 52 y )  
Lt IIA - Lt EIA  
1307290098301  
105



Zoom: 57% Angle: 0  
Im: 1/32  
非压缩  
Position: HFS



13/07/30 9:37:15  
Made In OsiriX

# 血管造影@jichi

Image size: 1024 x 1024  
View size: 584 x 584  
WL: 1948 WW: 614

03883972 ( 52 y , 52 y )  
Lt DICA — Lt DICA  
1307290098301  
106

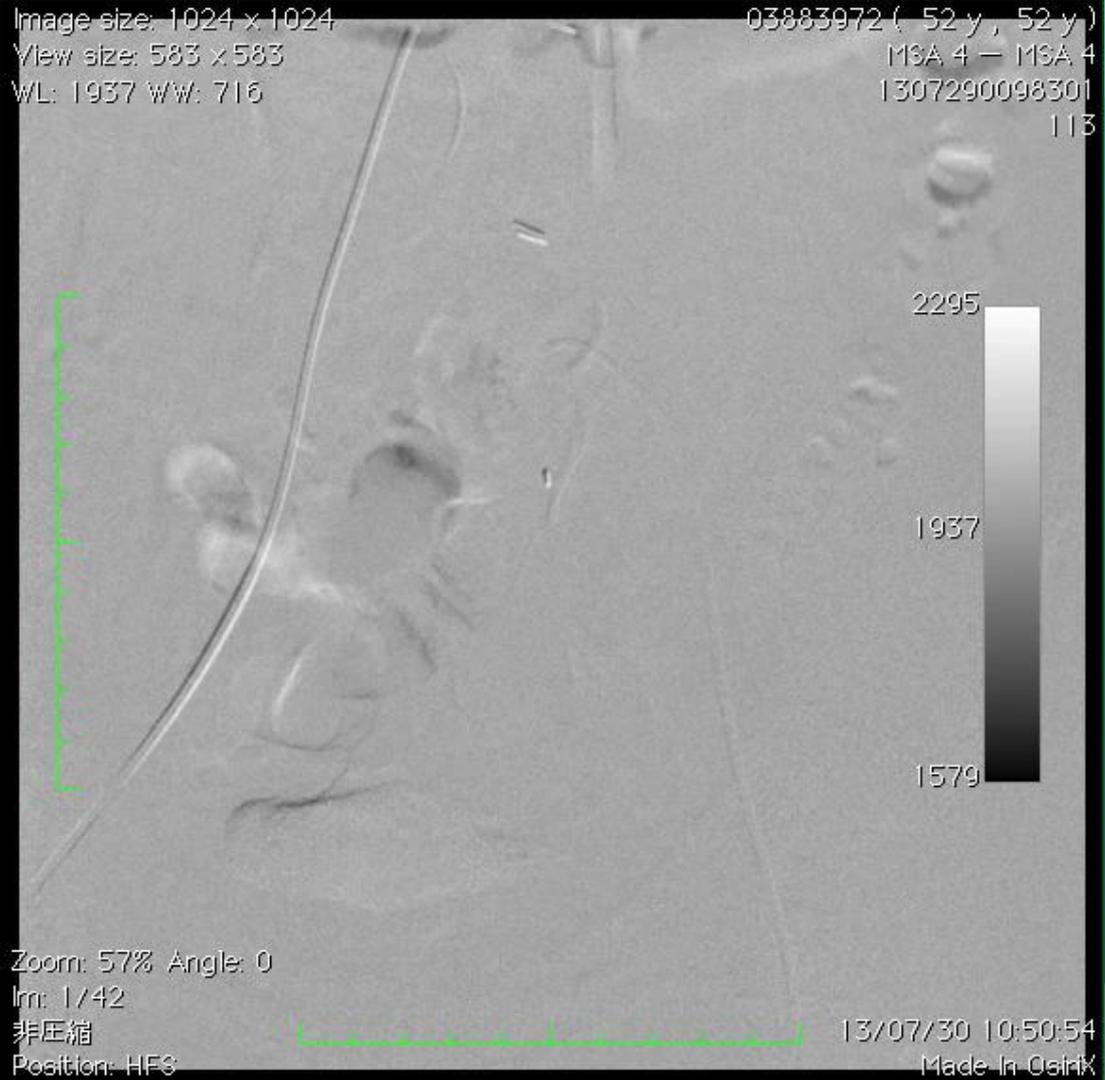


Zoom: 57% Angle: 0  
Im: 1/45  
非圧縮  
Position: HFS

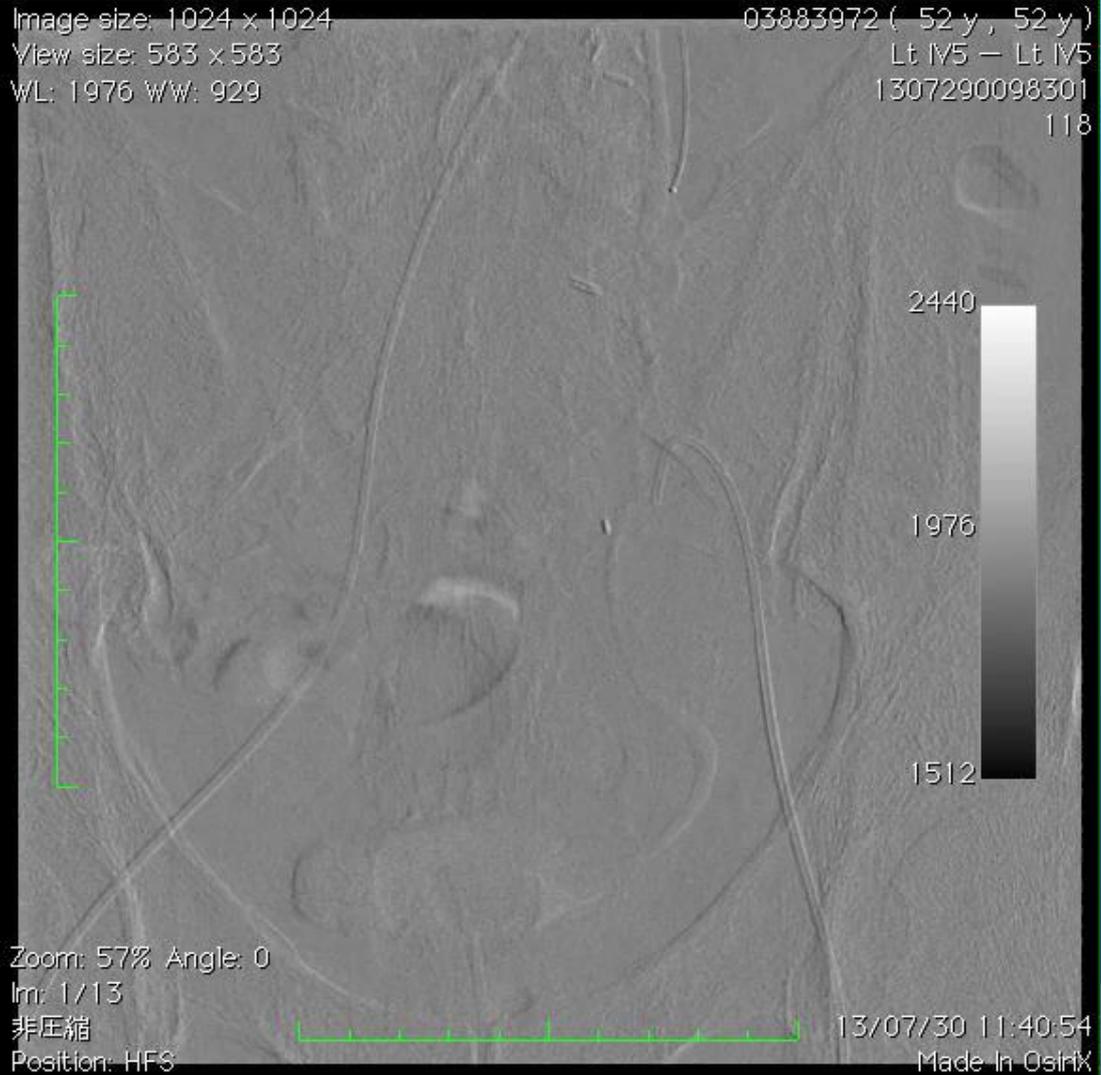


13/07/30 9:49:08  
Made In OsiriX

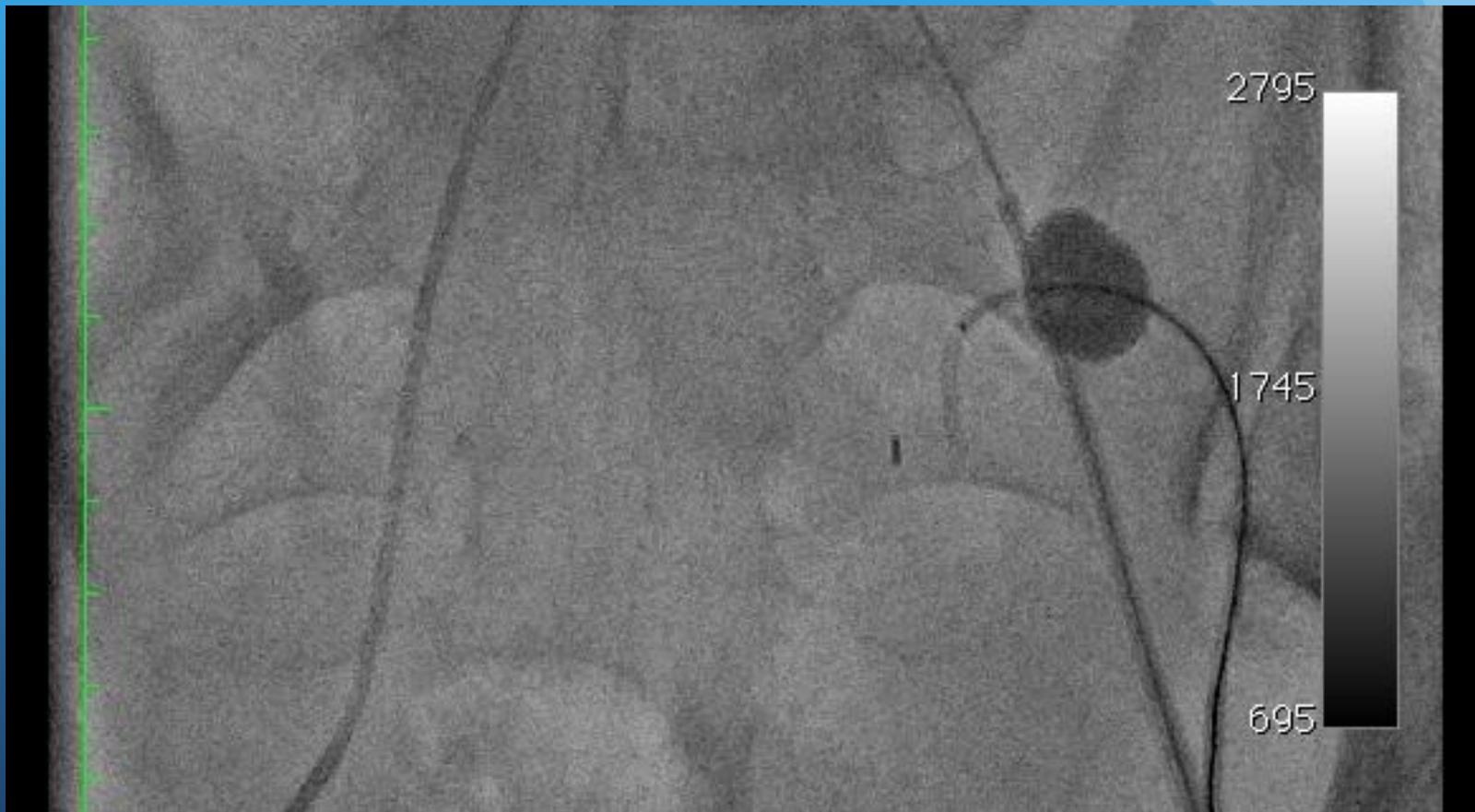
# 血管造影@jichi



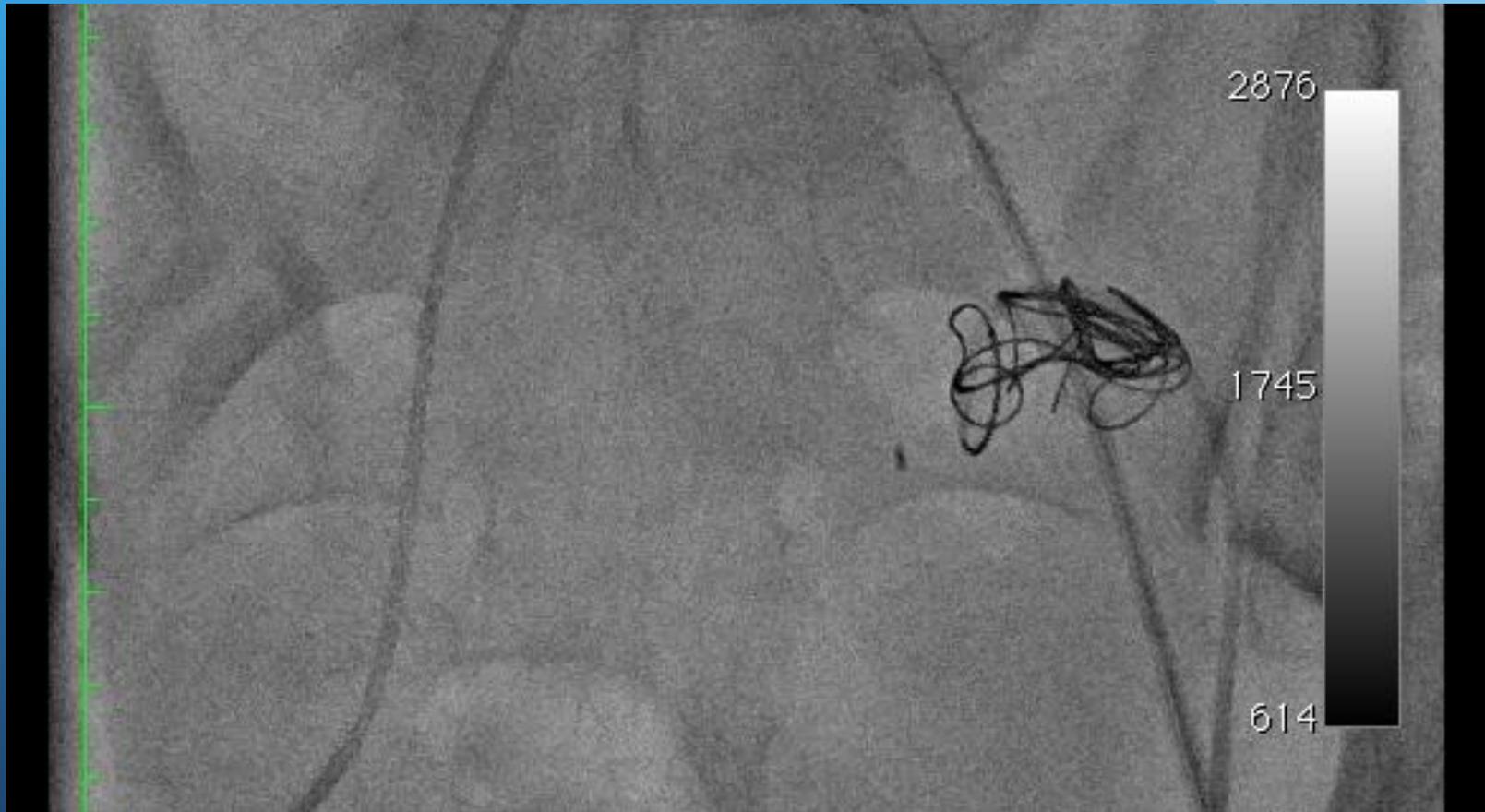
# 血管造影@jichi



# 血管造影@jichi



# 血管造影@jichi



coil migration の危険性が高すぎるため、治療は断念した。

# 治療不成功の要因

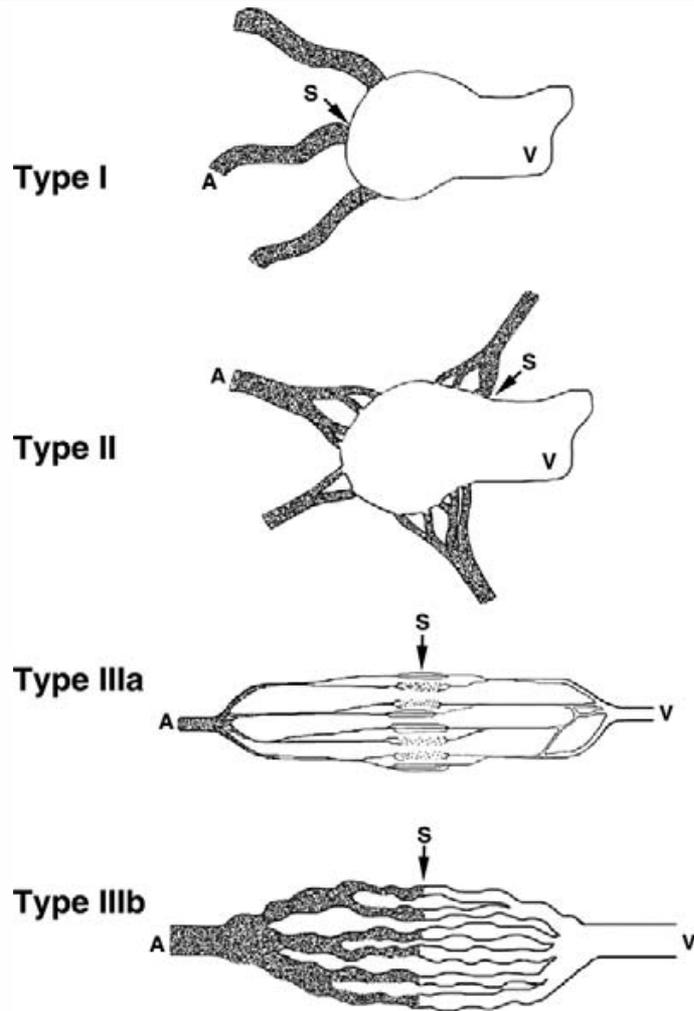
- アクセス： 動脈側～shunting pointまで到達できたか？
- 塞栓物質： coilは適切だったか？
  - ✓ NBCA
  - ✓ Alcohol
  - ✓ Plug
  - ✓ stentgraft
- High flow への対応
  - ✓ 全麻
  - ✓ 動脈側のtemporary occlusion

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- アクセス： 動脈側～shunting pointまで到達できたか？
- 塞栓物質： coilは適切だったか？
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  - ✓ Plug
  - ✓ stentgraft
- High flow への対応
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  - ✓ 動脈側のtemporary occlusion

なによりも術者の経験!!!!

# 文獻的考察



J ENDOVASC THER  
2006;13:527-538

# 文獻的考察

**TABLE 1**

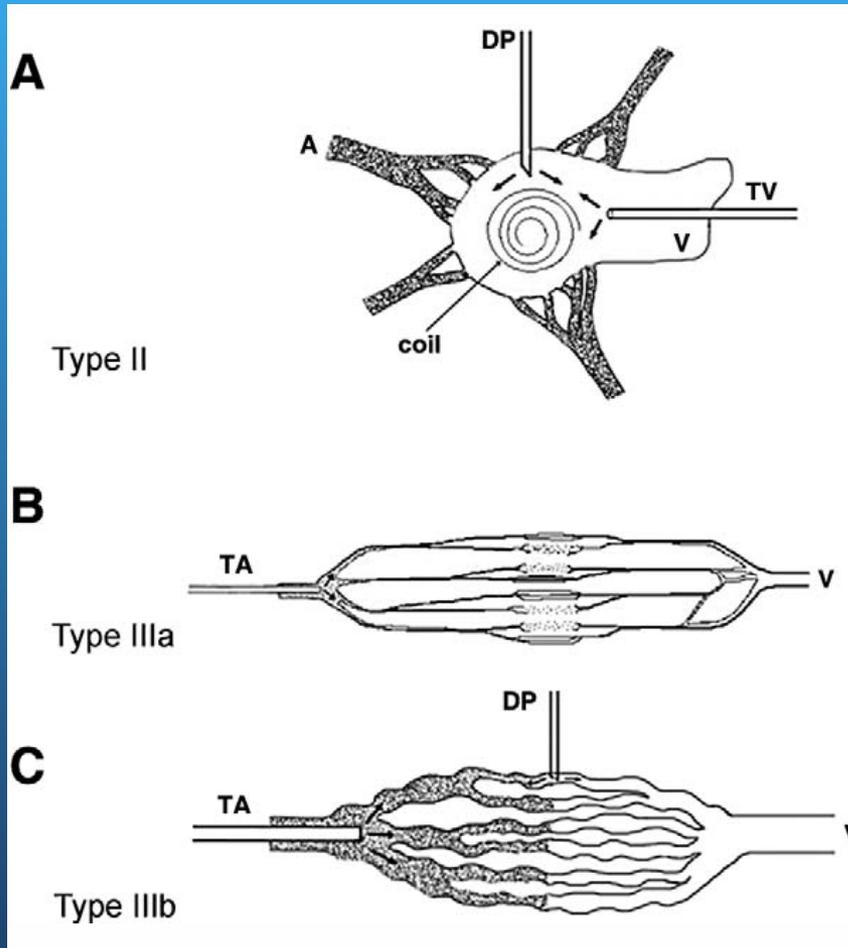
Therapeutic Outcomes of the 66 AVMs in the Body and Extremities According to the Angiographic Classification

Angiographic Class	Patients	Therapeutic Outcomes		
		Cure	Partial Remission*	No Remission*
Type II	13 (20%)	11	2 (1)	
Type IIIa	2 (3%)		1	1
Type IIIb	30 (45%)	10	15 (5)	5 (3)
Types II+IIIb	9 (14%)		4 (1)	5 (3)
Types IIIa+IIIb	12 (18%)		6 (2)	6 (4)
Totals	66 (100%)	21	28 (9)	17 (10)

Type II: arteriovenous fistulae, Type IIIa: arteriovenulous fistulae with non-dilated fistula, Type IIIb: arteriovenulous fistulae with dilated fistula.

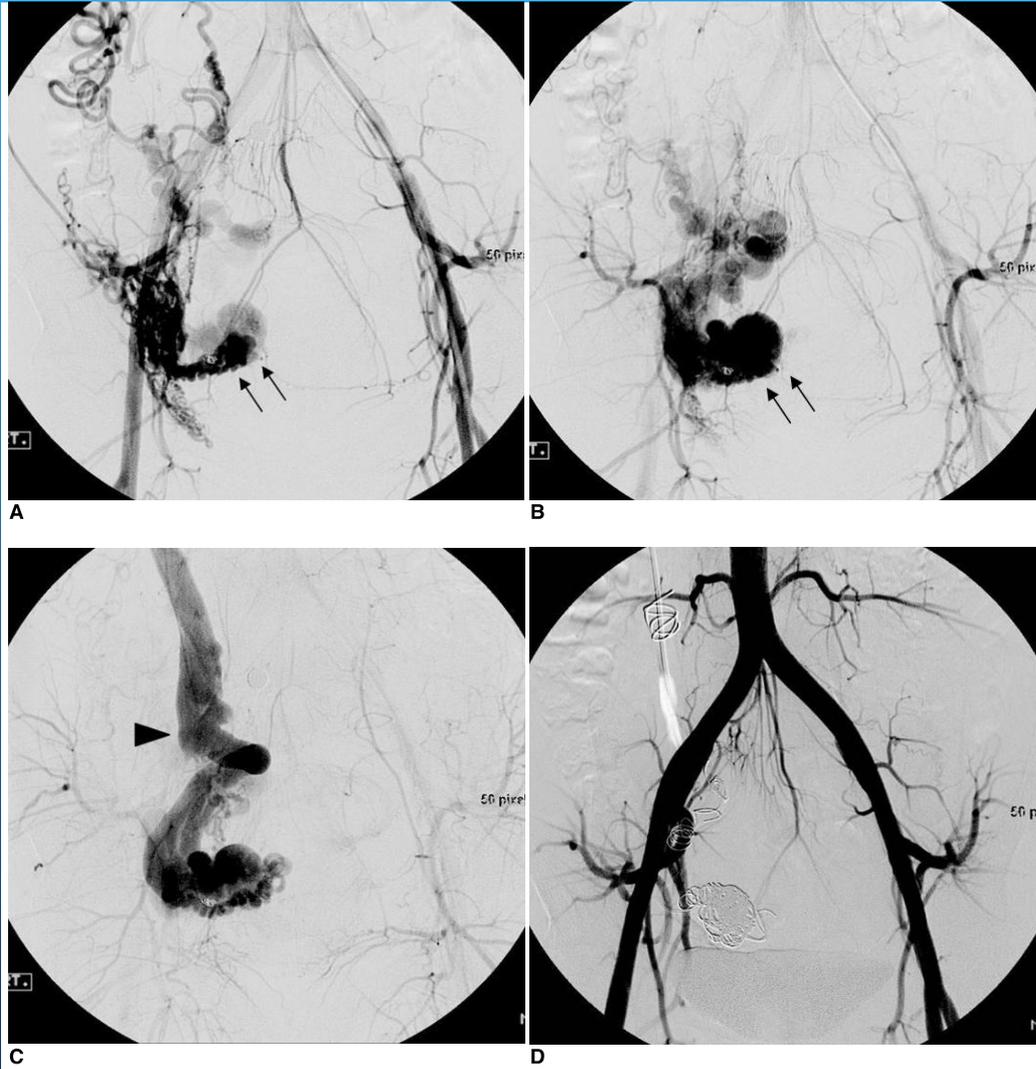
\* The number in parenthesis is the number of patients awaiting further treatment.

# 文獻的考察

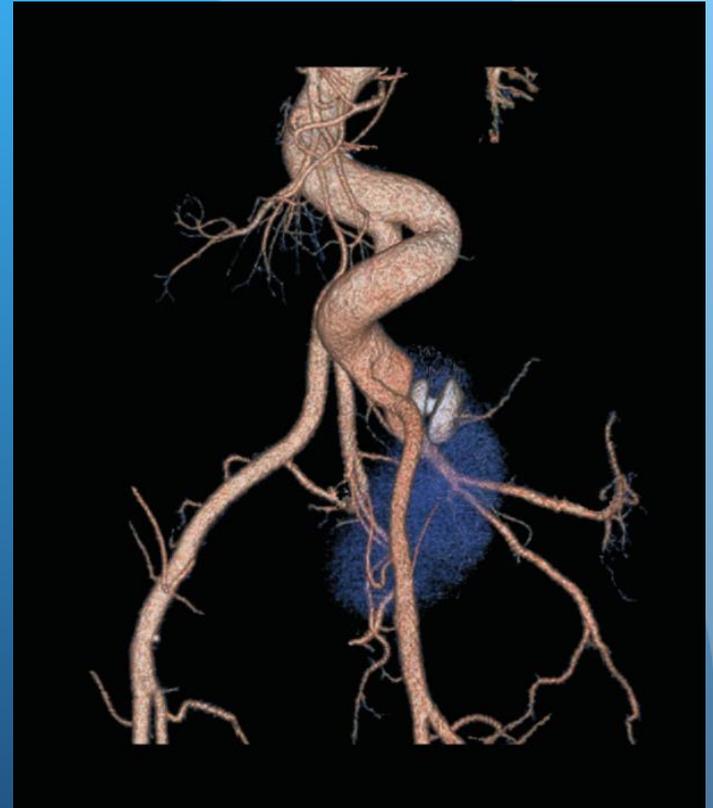
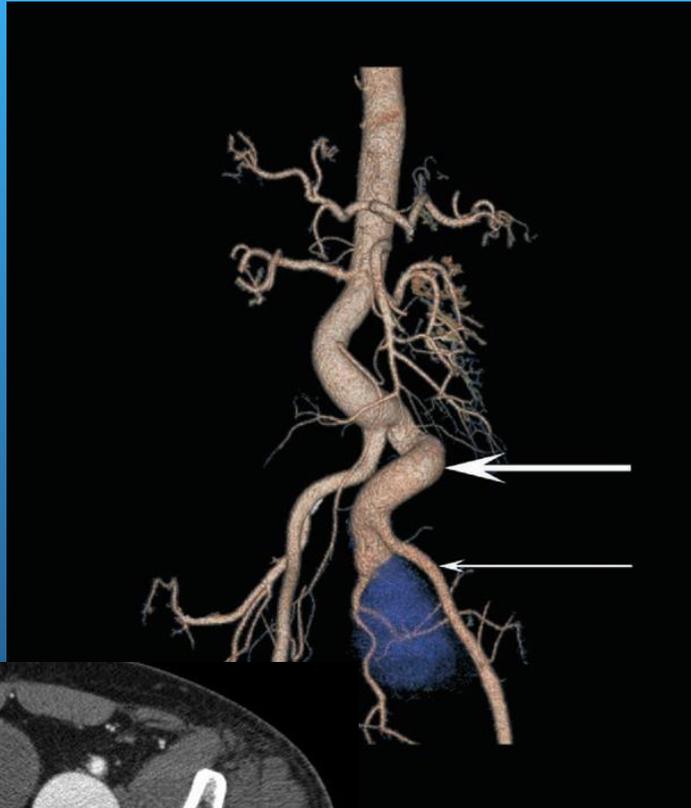


J ENDOVASC THER  
2006;13:527-538

# 文献的考察 : Alcohol(+ coil)

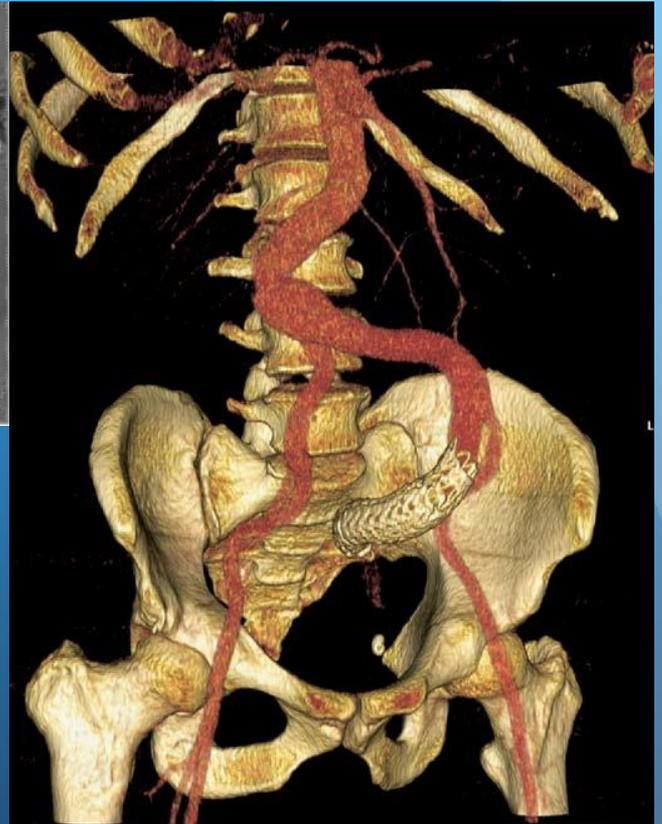


# 文献的考察：septal occluder



J Vasc Surg 2008;48:1597-9.

# 文献的考察：stentgraft



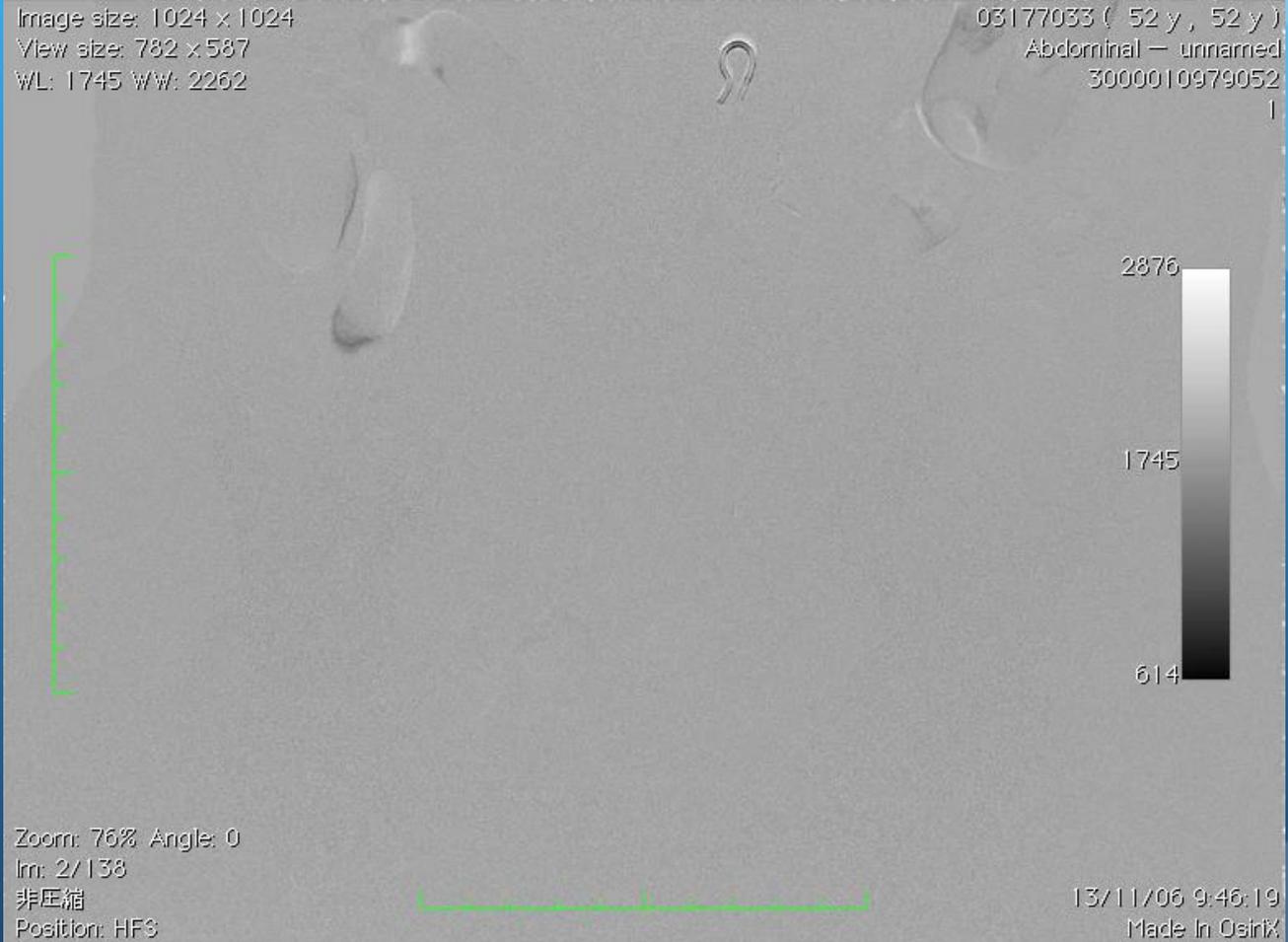
# 治療方針

- 外科的手術は無理（絶対無理 by 血管外科）
- 済生会：本多先生にもご相談。
- 血管内治療では
  - ✓ 局所麻酔、balloon assist+coil ではダメだった
  - ✓ 動脈側からの治療？ ドツボにはまる可能性。  
malignant AVM
  - ✓ stent graft？ 静脈側に置いた報告は見つからず。

結局治療方針は定まらず。

学会などでお見かけして相談し易そう（勝手な判断）な  
慶応大学 井上政則先生に突撃相談。面識無しでしたが...

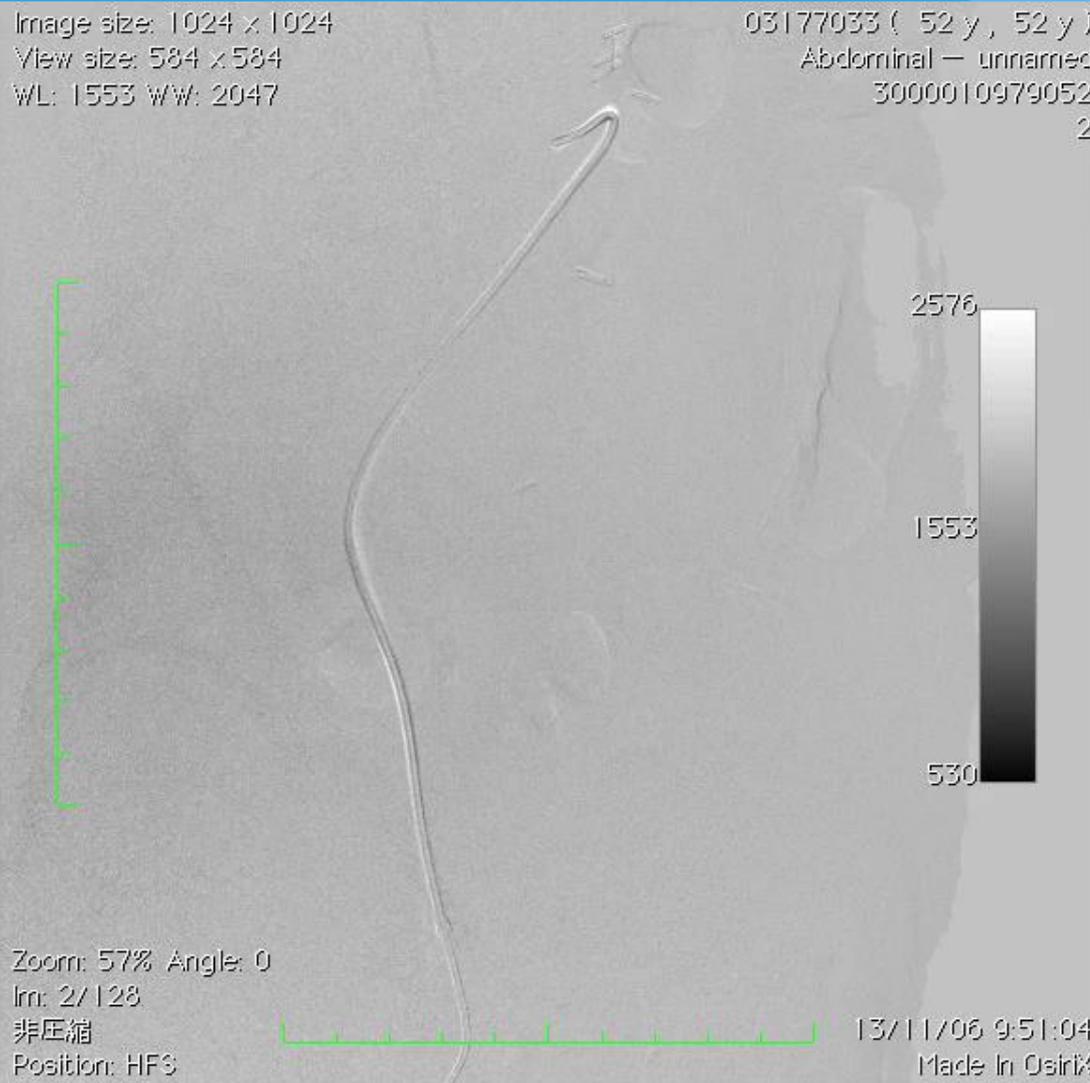
# 血管造影@hiratsuka



# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 584 x 584  
WL: 1553 WW: 2047

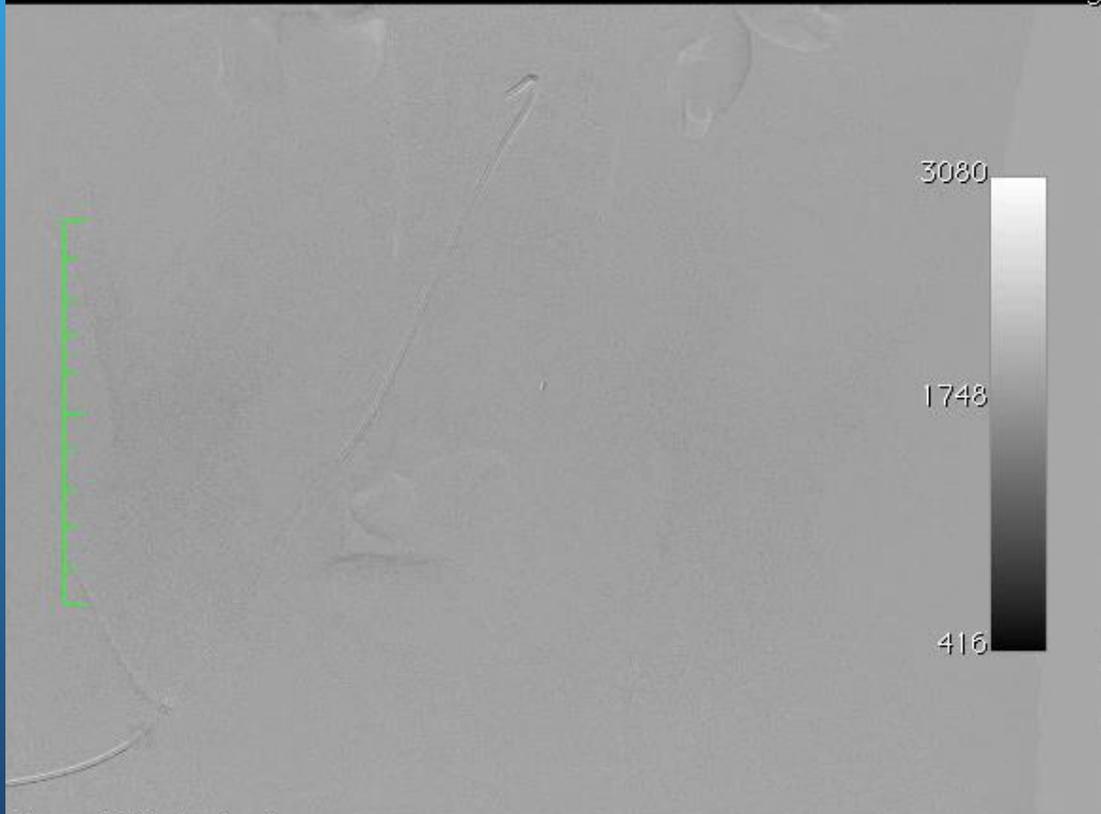
03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
2



# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 584 x 584  
WL: 1748 WW: 2663

03177033 ( 52 y , 52 y )  
Abdominal — unnamed  
3000010979052  
3



Zoom: 57% Angle: 0  
Im: 2/112  
非圧縮  
Position: HFS



13/11/06 9:57:51  
Made In OsiriX

# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 585 x 585  
WL: 1842 WW: 2341

03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
5



Zoom: 57% Angle: 0  
Im: 2/76  
非圧縮  
Position: HFS

13/11/06 10:06:32  
Made In Ostrix

# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 585 x 585  
WL: 1712 WW: 3335

03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
11



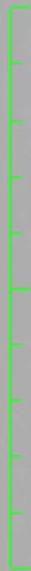
Zoom: 57% Angle: 0  
Im: 1/27  
非圧縮  
Position: HFS

13/11/06 10:49:33  
Made In Ostrix

# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 585 x 585  
WL: 1550 WW: 2401

03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
17



Zoom: 57% Angle: 0  
In: 1/46  
非圧縮  
Position: HFS



13/11/06 11:01:40  
Made In Ostrix

# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 585 x 585  
WL: 1918 WW: 2351

03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
20



Zoom: 57% Angle: 0  
Irr: 1/38  
非圧縮  
Position: HFS

13/11/06 11:15:12  
Made In OsiriX

# 血管造影@hiratsuka



# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 584 x 584  
WL: 1913 WW: 1842

03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
30

2834

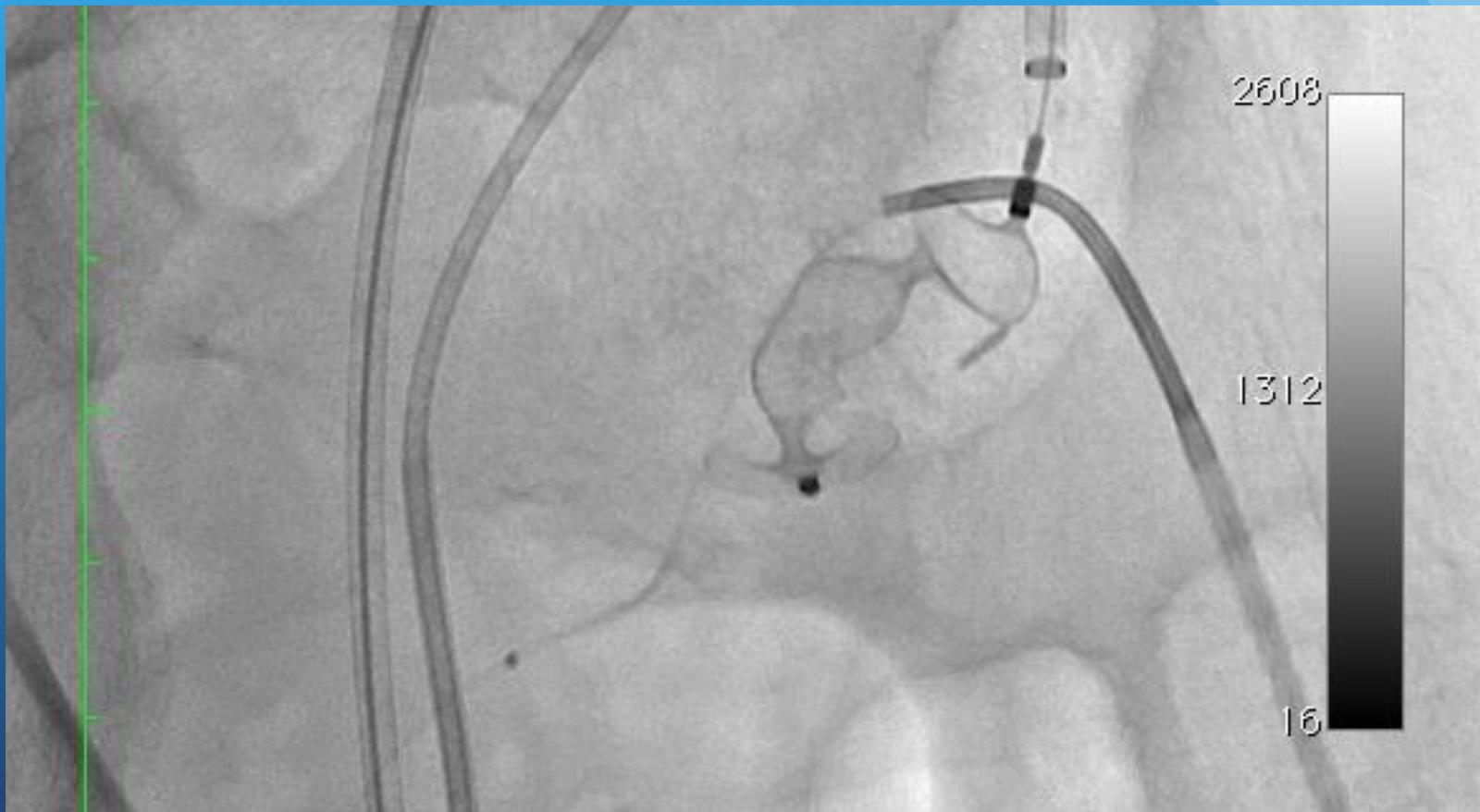
1913

992

Zoom: 57% Angle: 0  
Im: 1/38  
非圧縮  
Position: HFS

13/11/06 11:38:26  
Made In Ostrix

# 血管造影@hiratsuka



# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 578 x 578  
WL: 1521 WW: 2167

03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
34



Zoom: 57% Angle: 0  
In: 1/36  
非圧縮  
Position: HFS

13/11/06 11:46:15  
Made In OsiriX

# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 584 x 584  
WL: 1608 WW: 2311

03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
36



Zoom: 57% Angle: 0  
In: 1/51  
非圧縮  
Position: HFS

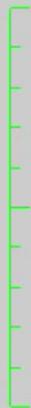
13/11/06 11:48:46  
Made In OsiriX

# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 585 x 585  
WL: 1315 WW: 2579

03177033 ( 52 y , 52 y )  
Abdominal — unnamed  
3000010979052  
37

Time0



Zoom: 57% Angle: 0  
In: 1/59  
非圧縮  
Position: HFS



13/11/06 11:50:14  
Made In OsiriX

# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 585 x 585  
WL: 1315 WW: 2579

03177033 ( 52 y , 52 y )  
Abdominal — unnamed  
3000010979052  
37

Time0



Zoom: 57% Angle: 0  
Im: 1/59  
非圧縮  
Position: HFS



13/11/06 11:50:14  
Made In OsiriX

# 血管造影@hiratsuka

Image size: 1024 x 1024  
View size: 585 x 585  
WL: 1453 WW: 2764

03177033 ( 52 y , 52 y )  
Abdominal - unnamed  
3000010979052  
38

7min



Zoom: 57% Angle: 0  
Im: 2/150  
非圧縮  
Position: HFS



13/11/06 11:54:18  
Made In OsiriX

# amplatzer vascular plug

TM

## AMPLATZER Vascular Plug II

### Product Highlights

- Designed to provide optimal embolization through single device occlusion and full cross-sectional vessel coverage
- Controlled, precise delivery with the ability to recapture and reposition the device as needed
- Rapid vessel occlusion provided by the device's multiple-lobe, multiple-layer Nitinol mesh design
- Deliverable through a 4-7 F sheath or a 5-9 F guide catheter
- 3-22 mm device sizes to treat a wide range of vessels



- coilが不安定な領域でも安定した塞栓効果。
- 日本国内未承認。
- 現在約20施設で臨床試験中。
- 1年後に国内使用可（予定）。
- 約17万円：安い！！

# 結語

- 治療困難な骨盤内AVMの経験をした。
- 自らの経験/知識/技術不足を思い知ったが、未熟さを、多くの先生に助けて頂き、治療が完遂できた。
- 今後も学会、勉強会に積極的に参加して、多くの事を学び、新しい情報を得ていきたい。
- 今後とも様々な先生方にご助力頂きながら、臨床に携わっていこうと思う。