



Which Patients Will Benefit from Early TEVAR in Uncomplicated Acute Type B Dissection?

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CASE 1



- **57 years old male**
- **CC: Chest pain & back pain**
- **CV risk: HTN (untreated)**
- **V/S at ER: 220/120 mmHg & 66 bpm**
- **CT at ER: uncomplicated aortic dissection
stanford type B**

CASE 1 : CT at ER



How are you going to manage in the patient ?



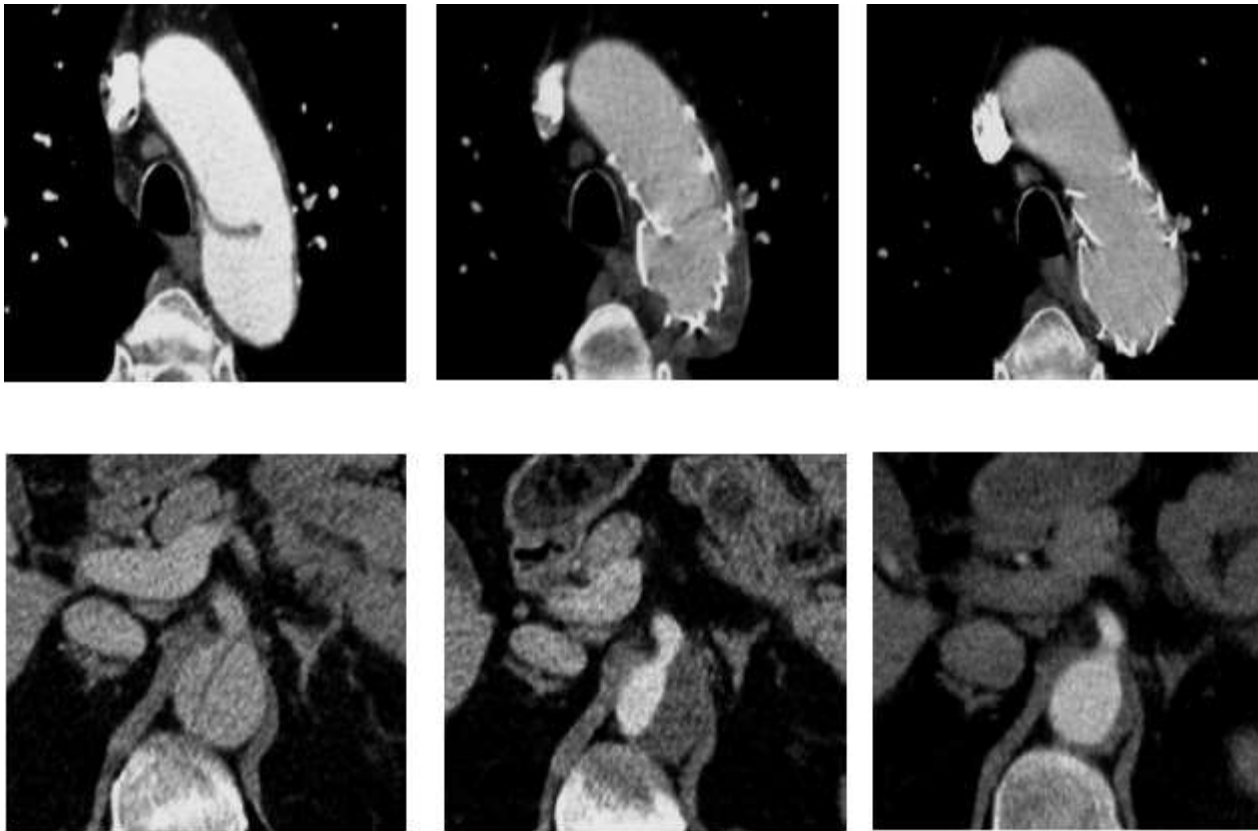
- **Medical Treatment for Uncomplicated AD**
- **TEVAR for High Risk Uncomplicated AD**
- **Management of Re-entry Site ?**
 - ✓ **Coil embolization**
 - ✓ **Plug device**
 - ✓ **Bare metal stent**
 - ✓ **Etc.**



Medical Treatment vs. TEVAR for Uncomplicated AD

TEVAR in Uncomplicated Type B AD ?

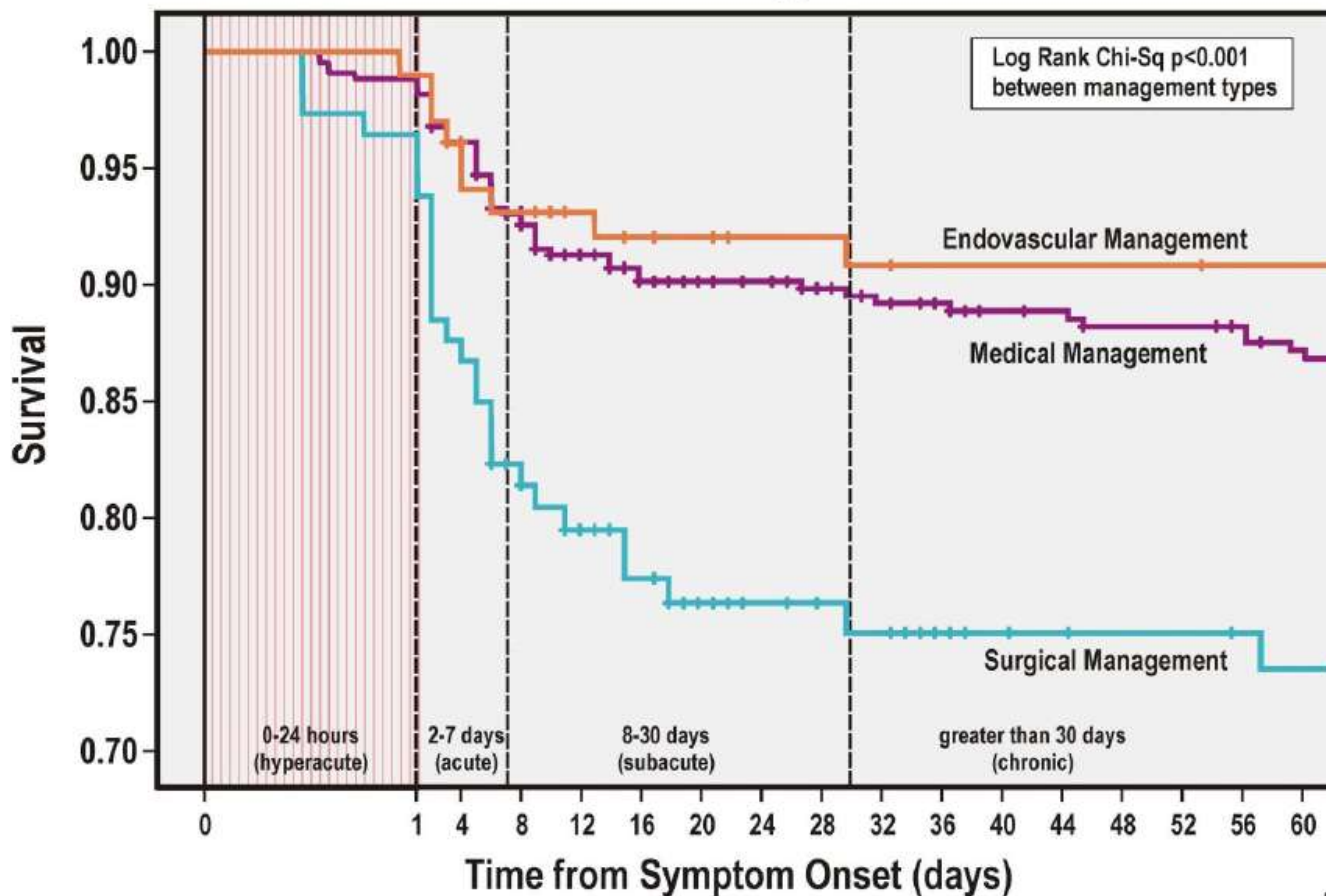
- **Induced aortic remodelling after stent graft**



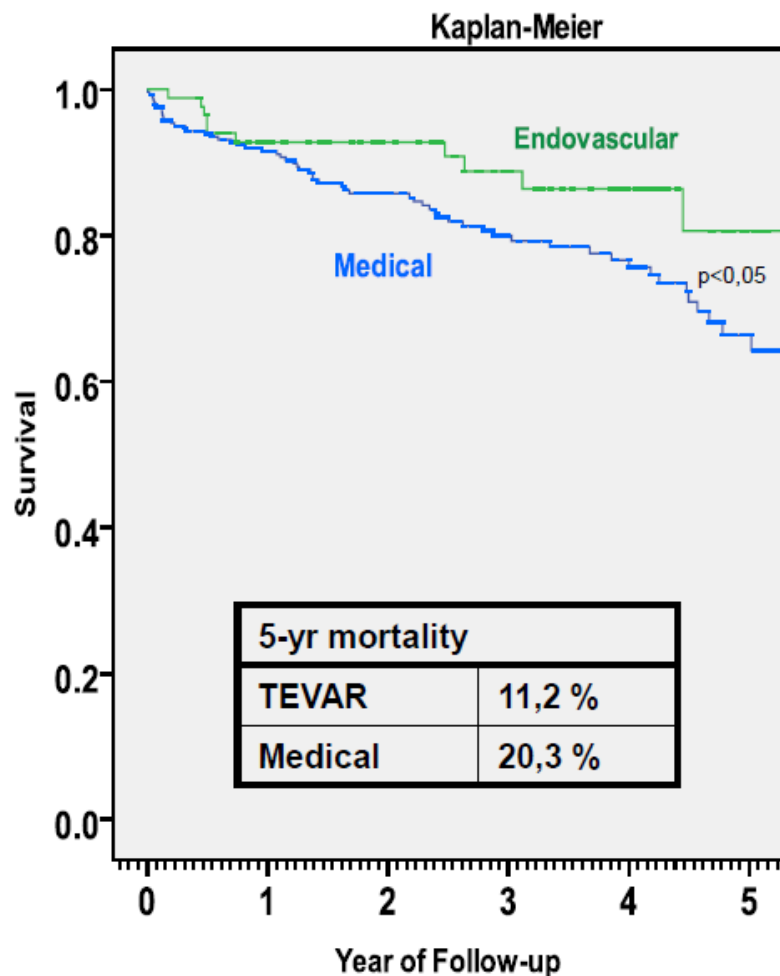
TEVAR in Uncomplicated Type B AD ? : Short-Term Outcomes in IRAD



Kaplan-Meier Survival Curve
Dissection Type: B

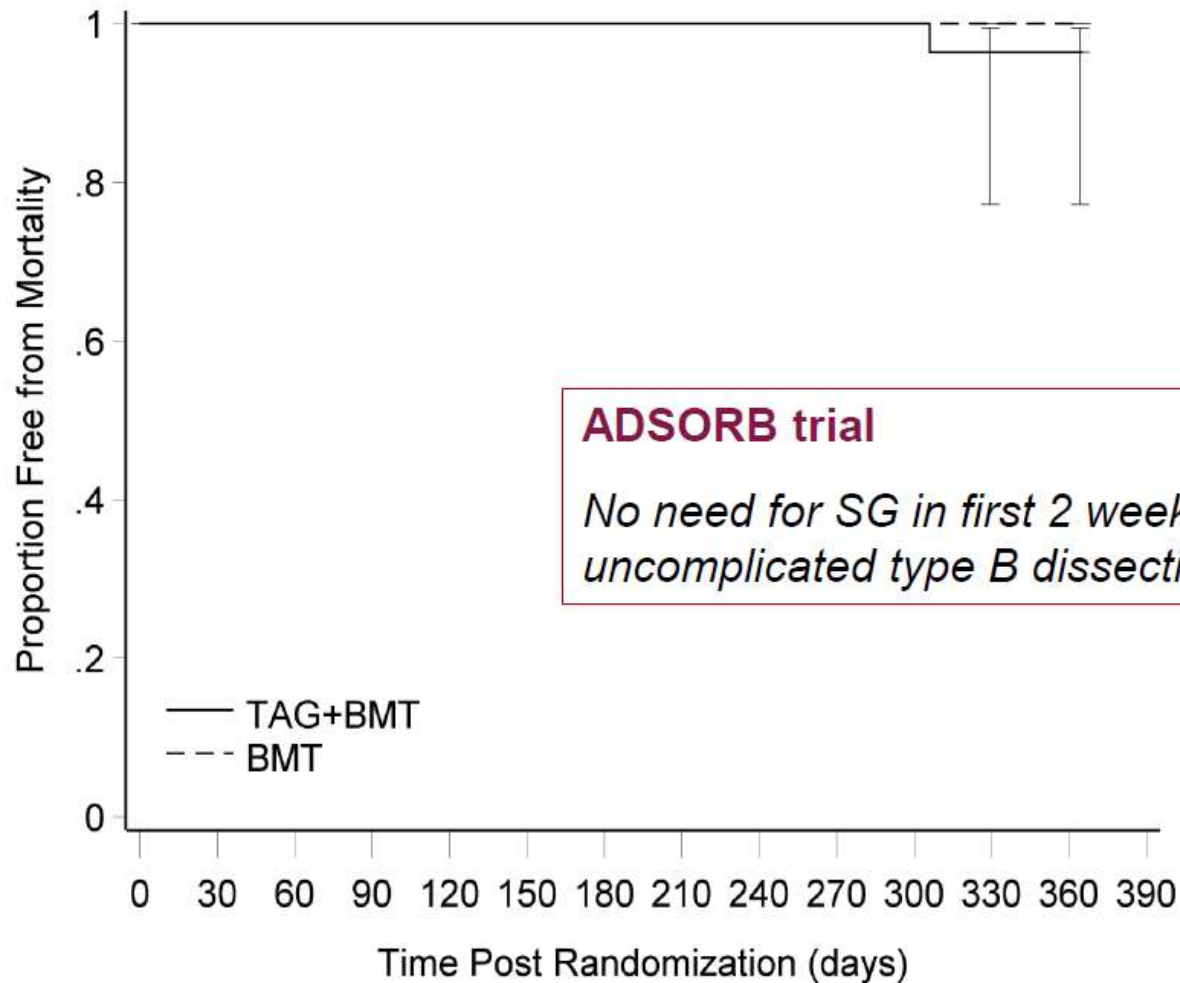


TEVAR in Uncomplicated Type B AD ? : Long-Term Outcomes in IRAD



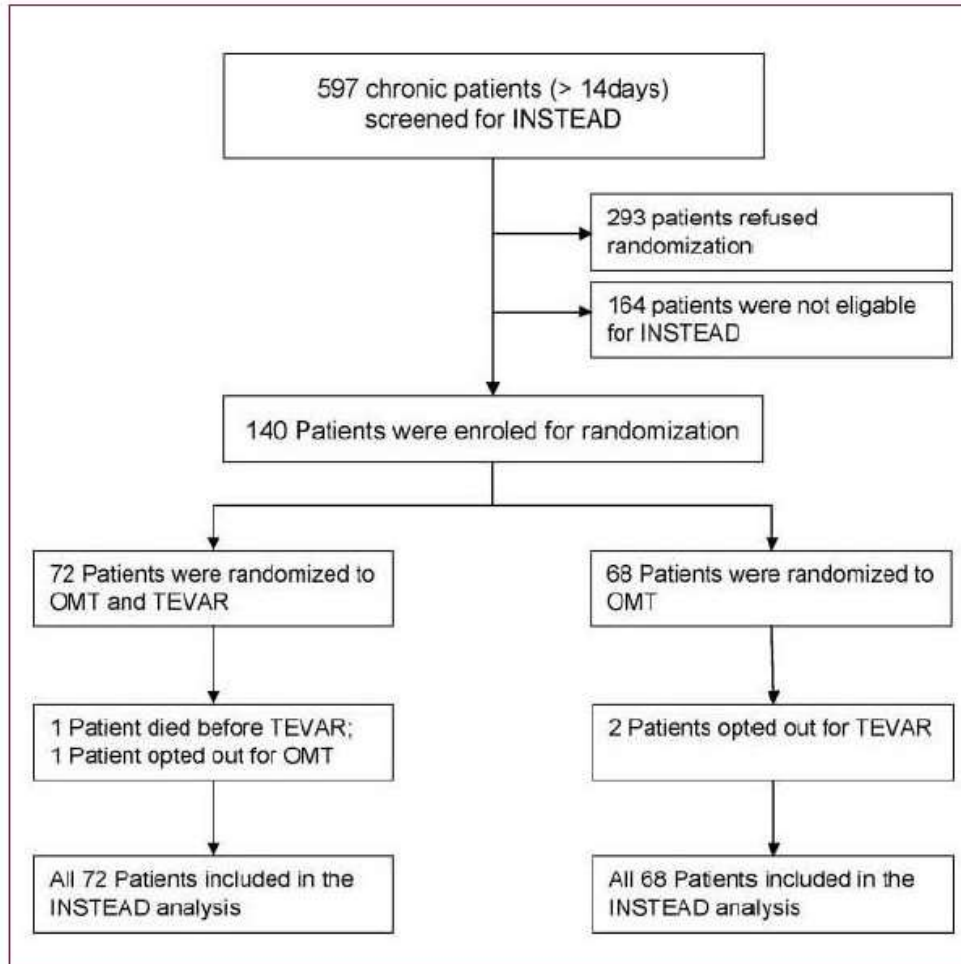
ADSORB : 1 Year Mortality (GORE TAG)

Uncomplicated Type B AD by TEVAR



INSTEAD Study

: 2 yr Outcomes of Uncomplicated Type B AD by TEVAR



INSTEAD Study

: 2 yr Outcomes of Uncomplicated Type B AD by TEVAR

Primary endpoint

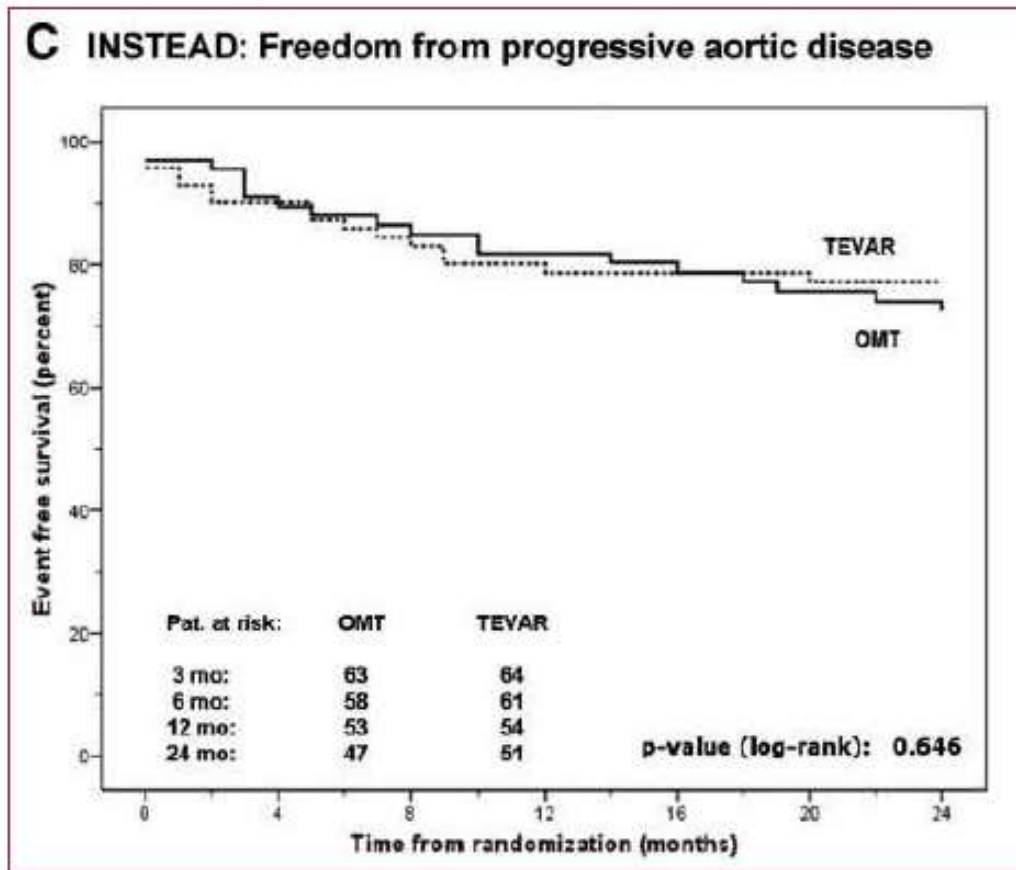
- ❑ All-cause mortality at 2 years

Secondary endpoints

- ❑ Thrombosis of False Lumen
- ❑ Degree of Aortic Expansion
- ❑ Cardiovascular morbidity
- ❑ Quality of life
- ❑ Length of ICU and hospital stay
- ❑ Crossover

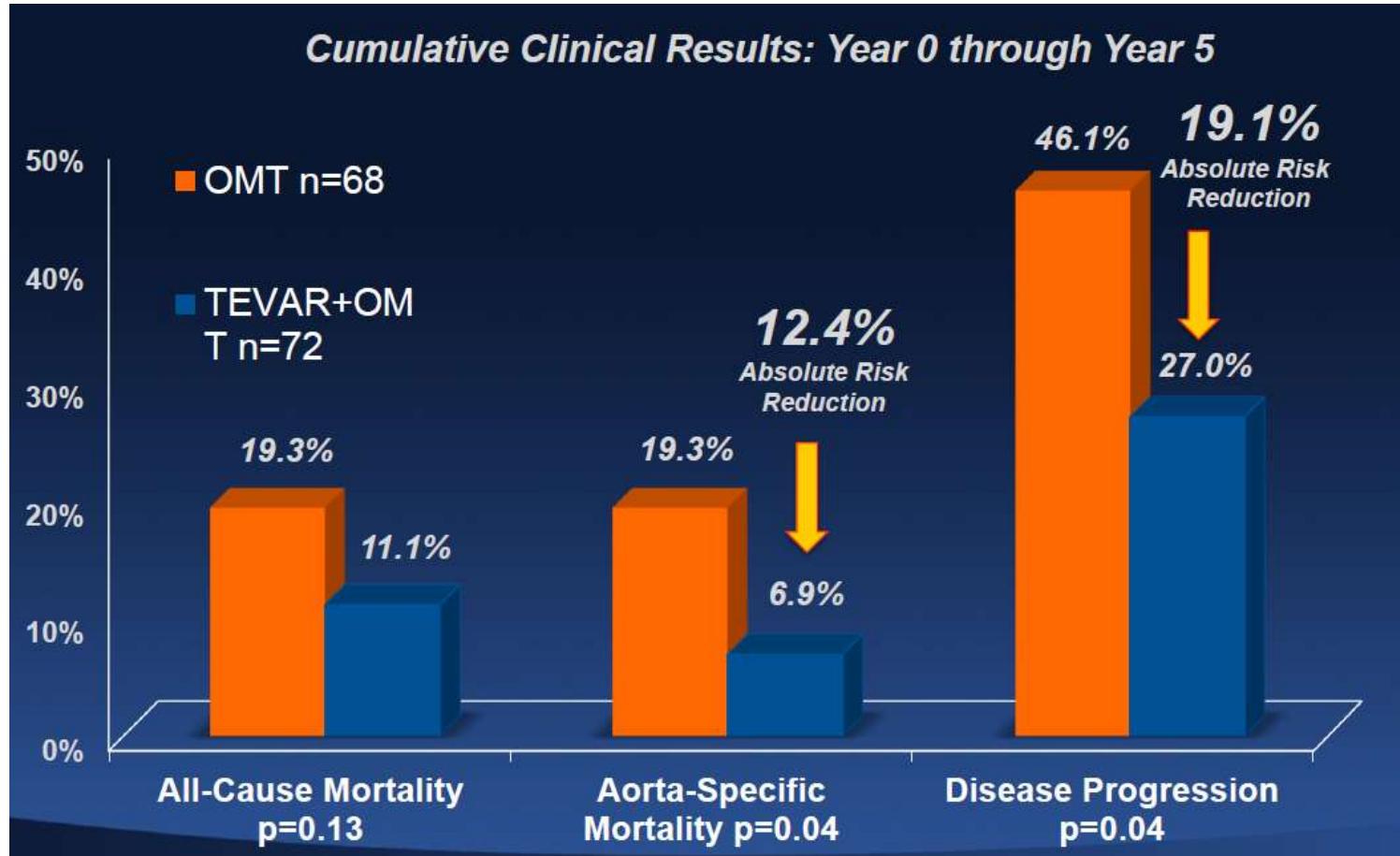
INSTEAD Study

: 2 yr Outcomes of Uncomplicated Type B AD by TEVAR



INSTEAD-XR

: 5 yrs Outcomes after TEVAR in Chronic Dissection



INSTEAD-XL and IRAD-LT : Extended Length of Follow up



- Uncomplicated type B dissection is not stable and medical management is not safe
- Isolation of the false lumen leads to remodeling
- Successful remodeling (usually completed after 2 years) ensures long-term stability
- Preemptive TEVAR in initially uncomplicated type B dissection enables remodeling and is a therapeutic option.

Is Uncomplicated Type B AD a Candidate for TEVAR ?



- **INSTEAD 2 Yr : Random Study → Fail**
 - **ADSORB 1 Yr : Random Study → Fail**

 - **INSTEAD-XL : Extended Study of Follow up**
 - **IRAD-LT : Extended Study of Follow up**
- Registry Data**
- **Favorable Results, Good aortic remodelling**

High Risk Patient in Uncomplicated Type B AD

Risk for Late Reoperation in Type B AD

- **Aorta > 4cm**

Onitsuka, et al. ATS 2004 (Japan)

Winnerkvist, et al. EurJEVS 2006 (Sweden)

- **False Lumen > 22mm**

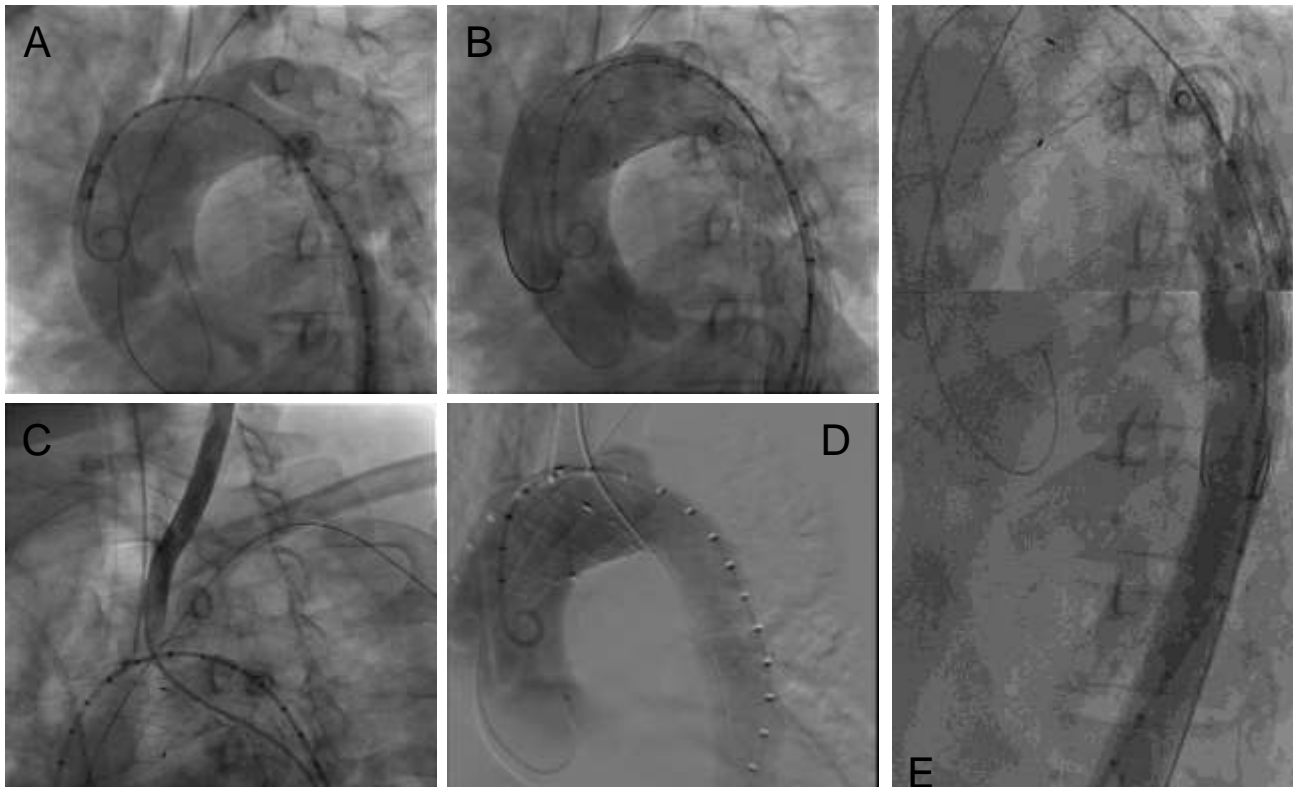
Song, et al. JACC 2007

- **Partially Thrombosed False Lumen**

Tsai, et al. NEJM 2007

Unsolved Problem of TEVAR for Uncomplicated AD

- Intima tear site is usually near left subclavian artery.



Unsolved Problem of TEVAR for Uncomplicated AD

➤ **Birdbeak** → **Retrograde aortic dissection**



Unsolved Problem of TEVAR for Uncomplicated AD

➤ Birdbeak → Retrograde AD



*Zenith
Toshomba, et al*



Talent



TAG

Prevention of Retrograde Aortic Dissection



- Minimal oversizing of aortic stent graft
- Use of aortic stent graft without bare area
- Avoidance of balloon dilatation
- Careful manipulation of guidewire and catheter

Unsolved Problem of TEVAR for Uncomplicated AD

➤ Paraplesia

➤ Stroke

Especially sacrifice of left SCA



Parameter	Conventional	Stent	<i>p</i> Value
Length of intervention (min)	320 ± 94	150 ± 28	< 0.05
Mean length of intensive care unit stay (days)	13 ± 15	4 ± 2	< 0.05
Mean hospital stay (days)	10 ± 3	6 ± 1	< 0.05
Spinal cord injury (%)	12	0	NS
Operative mortality (%)	31	10	NS

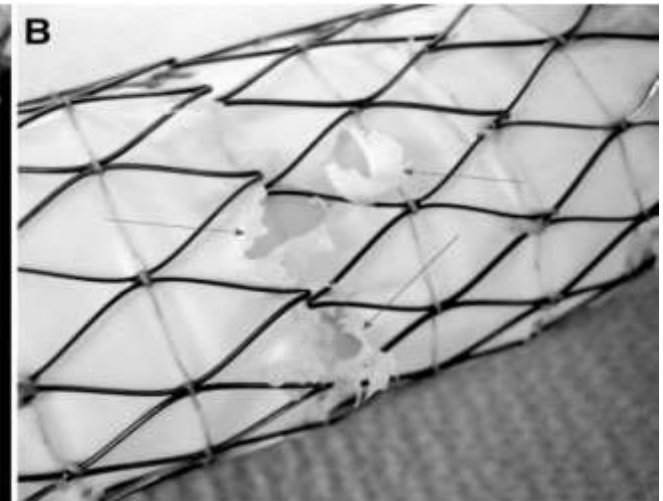
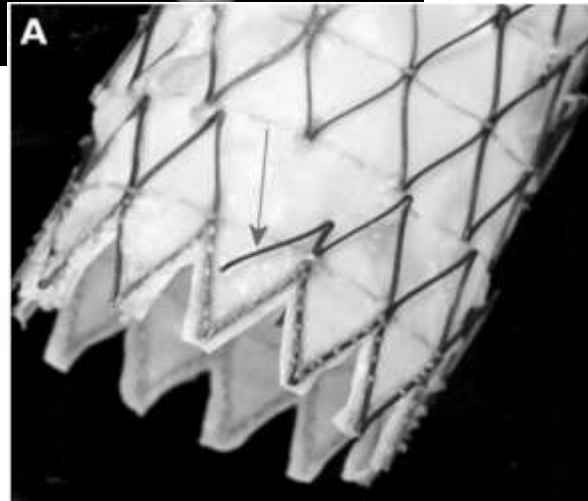
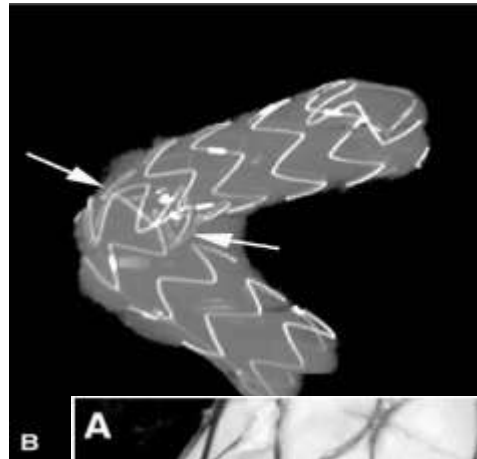
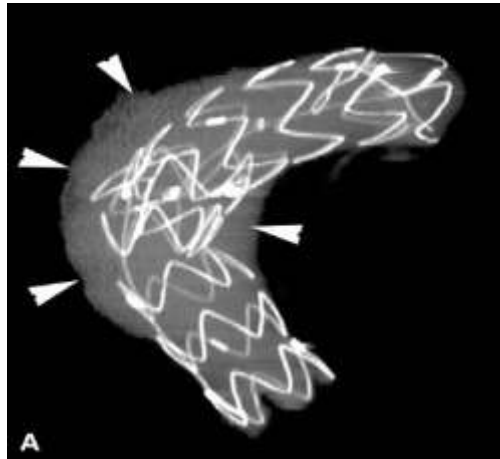
Values are mean ± standard deviation.

NS = not significant.

Unsolved Problem of TEVAR for Uncomplicated AD

- Stent graft migration, Stent fracture, Fabric tear

during long term follow up



SUMMARY



TEVAR for Uncomplicated AD

- **No well designed randomized study**
- **No long term data more than 10 years**
- **Birdbeak appearance of stent graft : retrograde AD**
- **Good remodeling of aorta**



Which Patients Will Benefit from Early TEVAR in Uncomplicated Acute Type B Dissection?

Case 2 : 52 years old Male

: Medical Treatment of Uncomplicated type B AD



Idx 63	Idx 76	Idx 147	Idx 156	Idx 1	Idx 2	Idx 224	PNUH Radiology 2016-04-13 PARK JONG IL ^ M 052Y 160172315 DOB:1964-02-20
SMS Defi	SMS Defi	SMS Defi	SMS De	SMS ISMS	SMS	SMS Definition AS+	
Se 5	Se 5	Se 5	Se 5	Se 5	Se 5	Se 5	
Im 63	Im 76	Im 147	Im 156	Im 1	Im 2	Im 224	
CT	CT	CT	CT	CT	CT	CT	
FFS	FFS	FFS	FFS	FFS	FFS	FFS	
2.0thk	2.0thk	2.0thk	2.0thk	2.0th	2.0th	2.0thk	
APPLIED	APPLIED	APPLIED	APPLIE	APPL	APPL	APPLIED	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	

FOV 300	FOV 300	FOV 300	FOV 300	FOV 300	FOV 300	FOV 300X300
TP 137.0	TP 163.0	TP 305.0	TP 323	TP 39	TP 45	TP 459.0
TI 500	TI 500	TI 500	TI 500	TI 50	TI 50	TI 500
kVp 120	kVp 120	kVp 120	kVp 12	kVp 1	kVp 1	kVp 120.0
mAs 112	mAs 116	mAs 125	mAs 12	mAs	mAs	mAs 122(196 mA)
GT 0	GT 0	GT 0	GT 0	GT 0	GT 0	GT 0
HEART	HEART	HEART	HEART	HEAR	HEAR	HEART
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W 400
L 20
Z 100%
Compression 3:1

Which Patients Will Benefit from Early TEVAR in Uncomplicated Acute Type B Dissection?



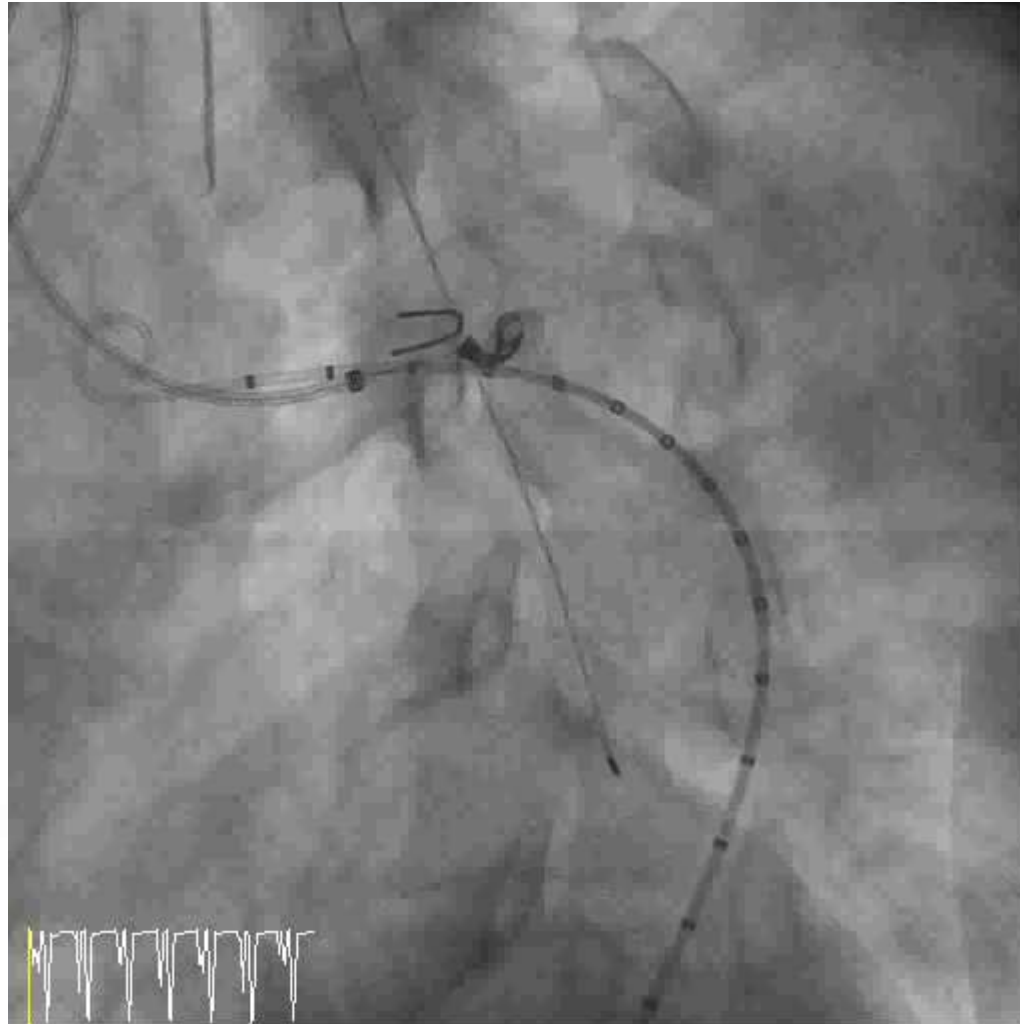
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- 2. Diameter of False Lumen > 22mm**
- 3. Length of Inimal tear by TEE > 10mm**

CASE 1 : CT at ER



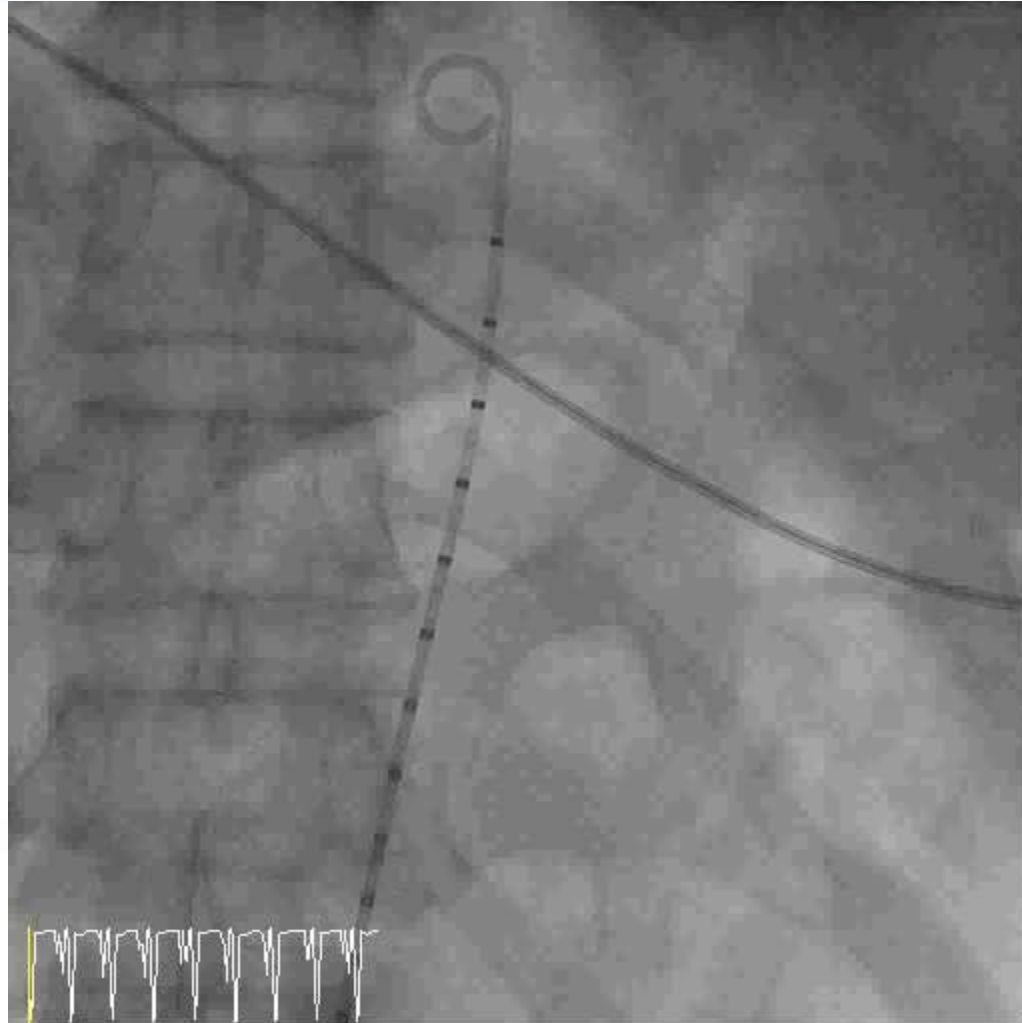
Case 1

: TEVAR for High Risk Uncomplicated AD



Case 1

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Case 1

: TEVAR for High Risk Uncomplicated AD

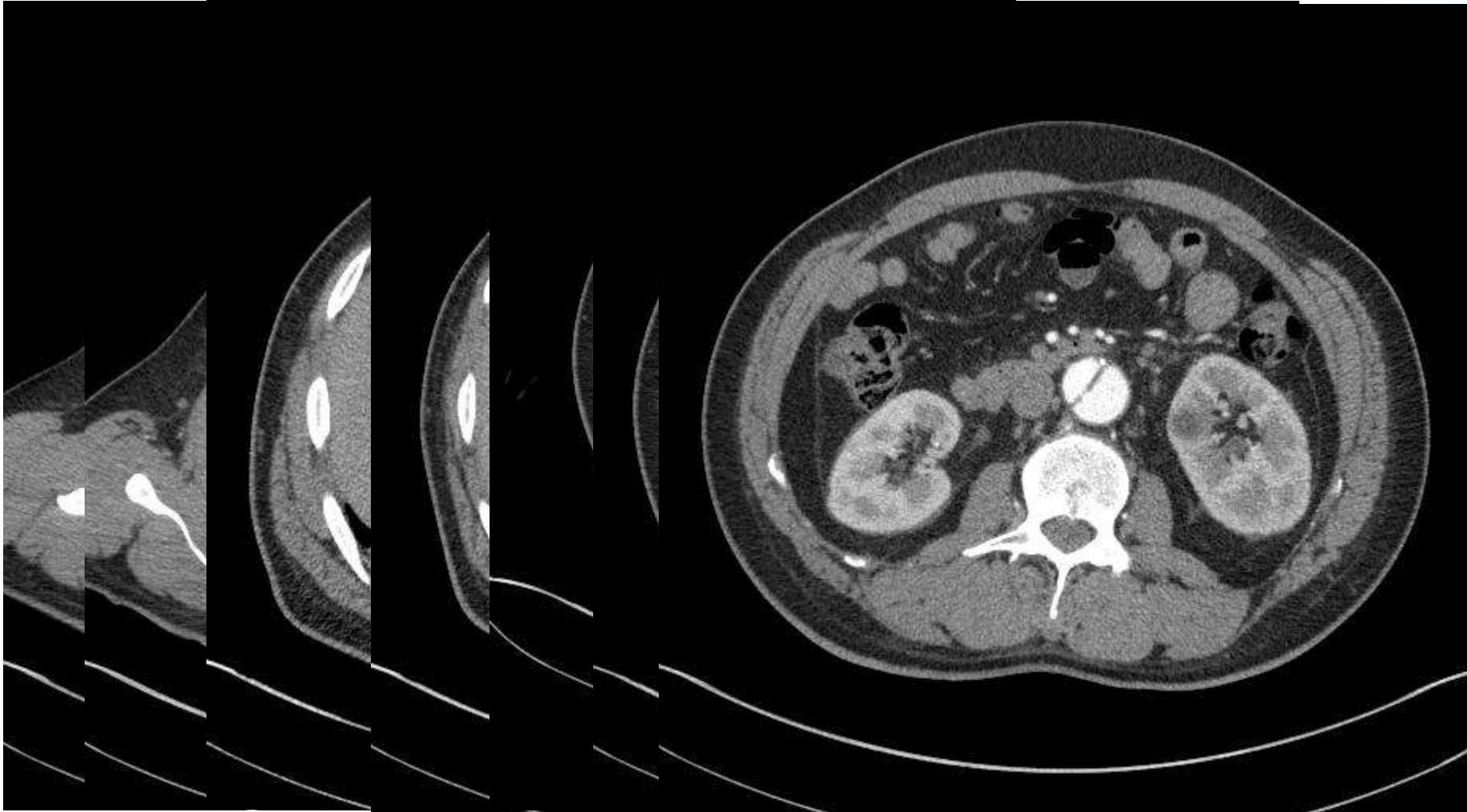


Case 1

: TEVAR for High Risk Uncomplicated AD



CASE : CT after 7 Days

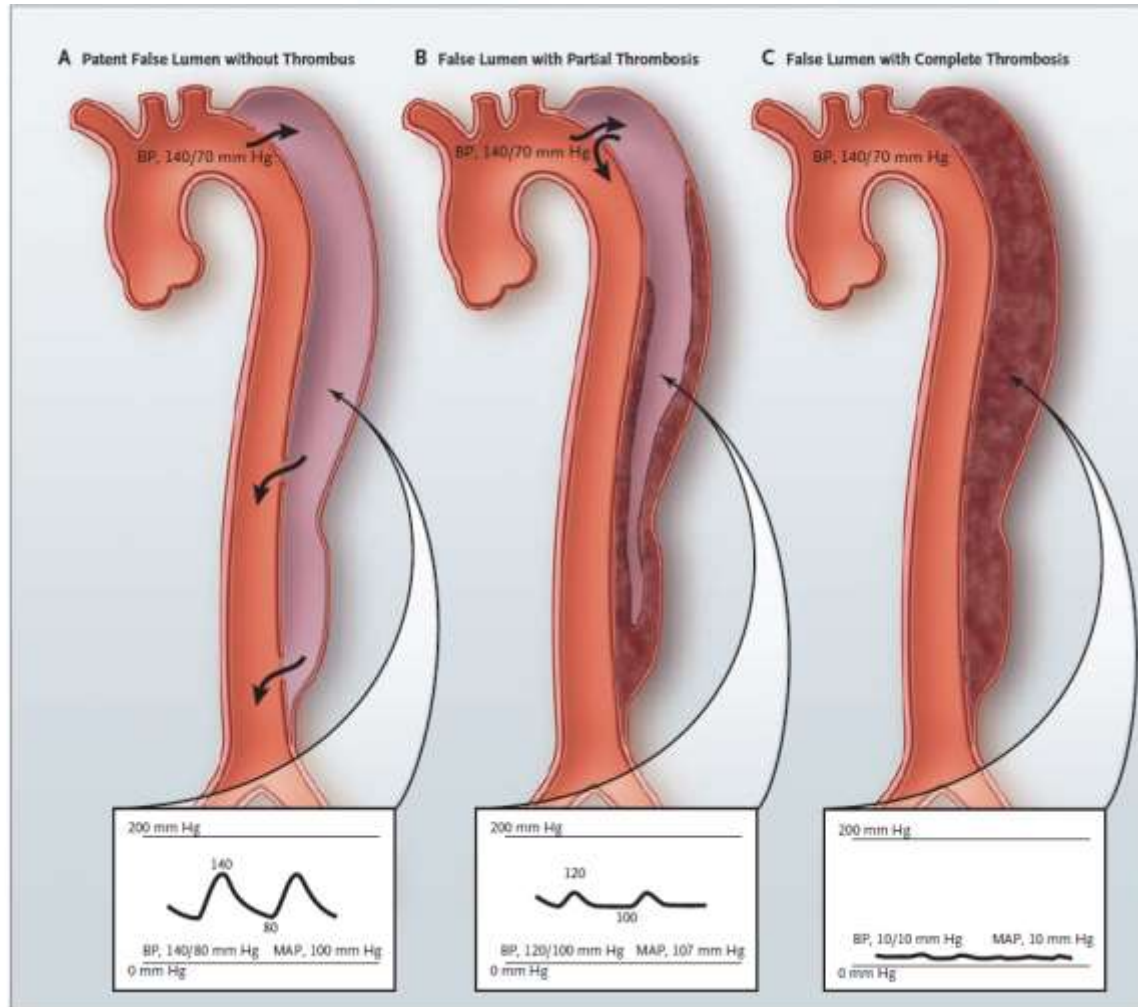


How Are You Going to Manage at the Re-Entry Site?

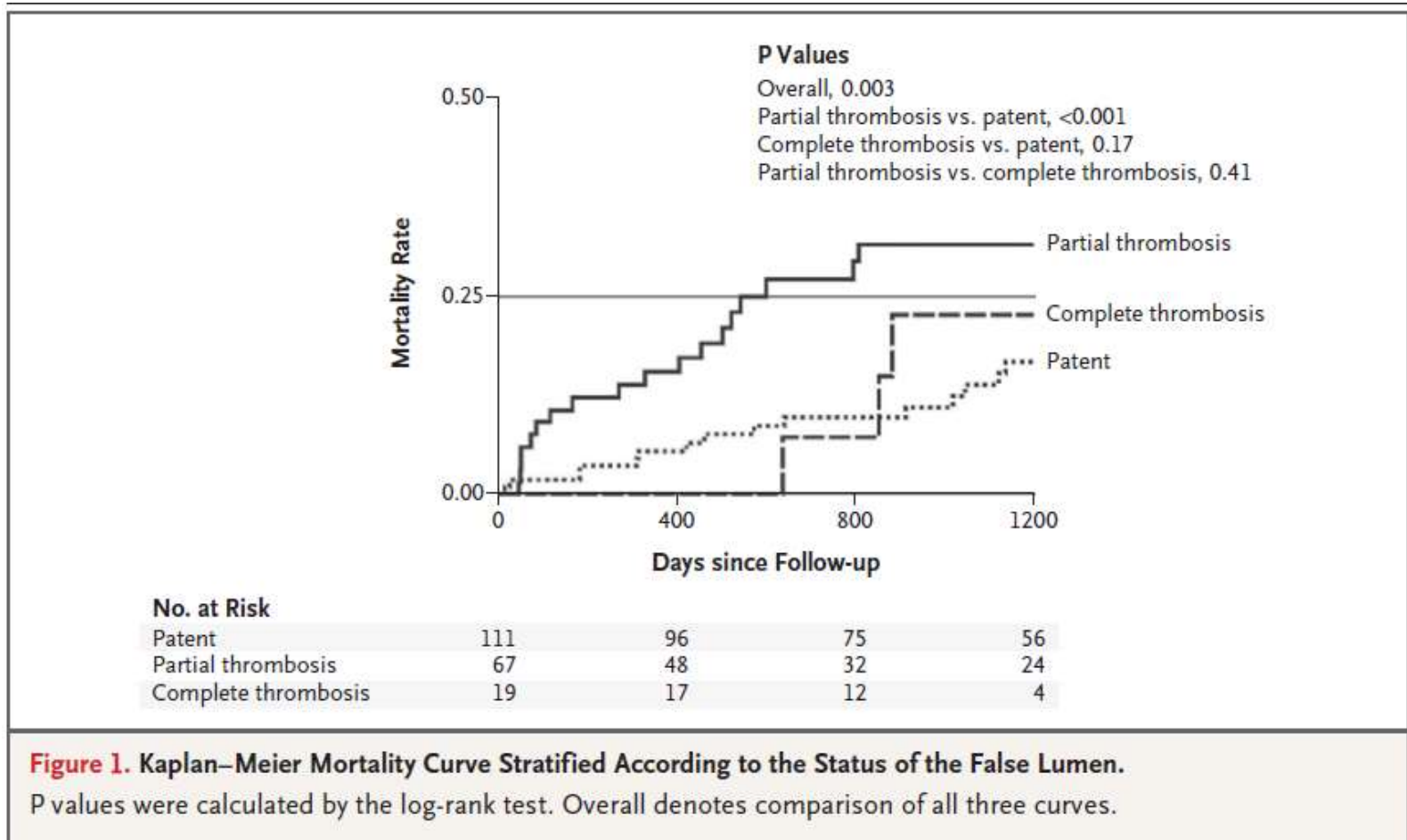


- **Coil embolization**
- **Plug device**
- **Bare metal stent**
- **Etc.**

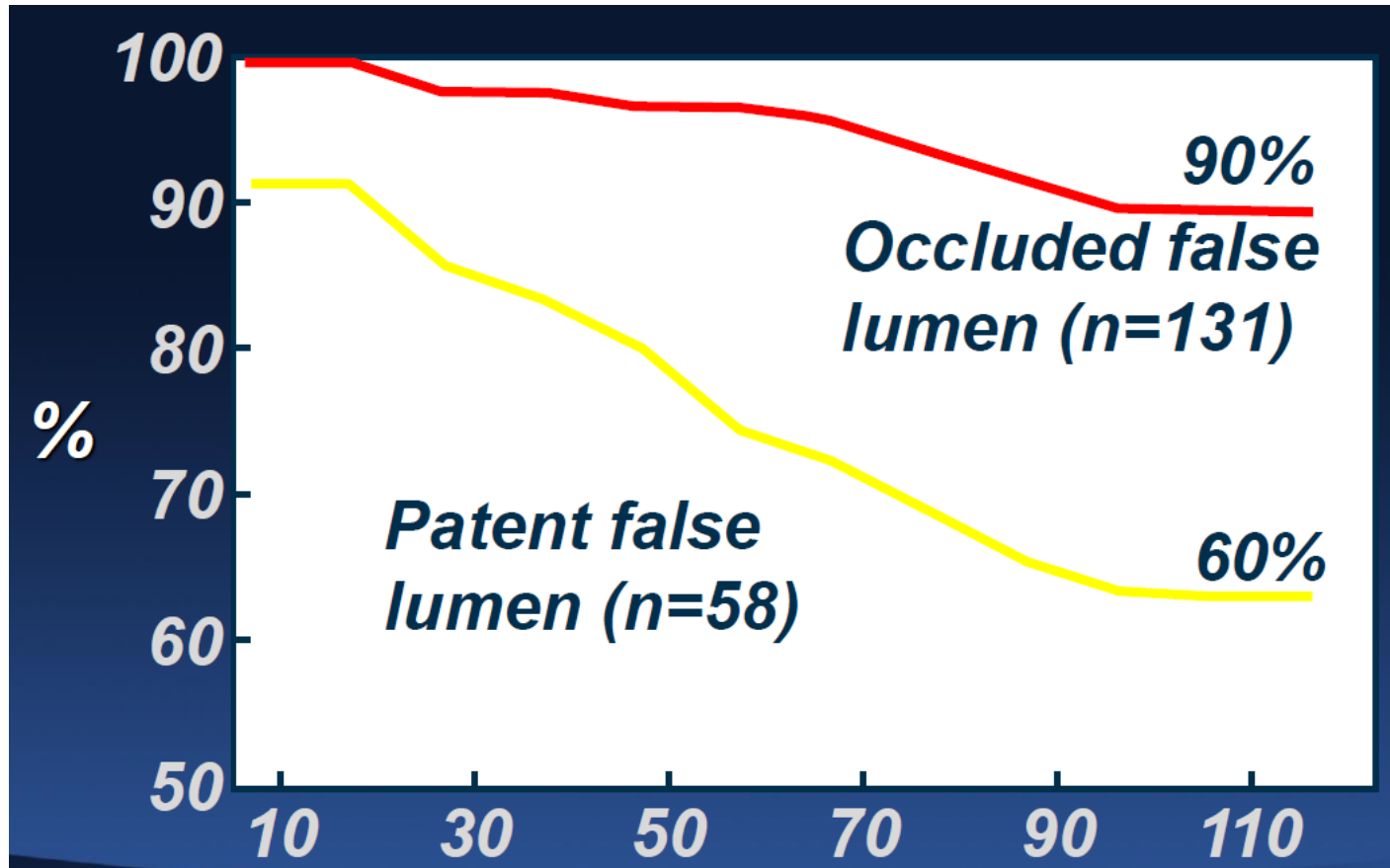
High Risk Patient in Uncomplicated Type B AD : Partial Thrombosis



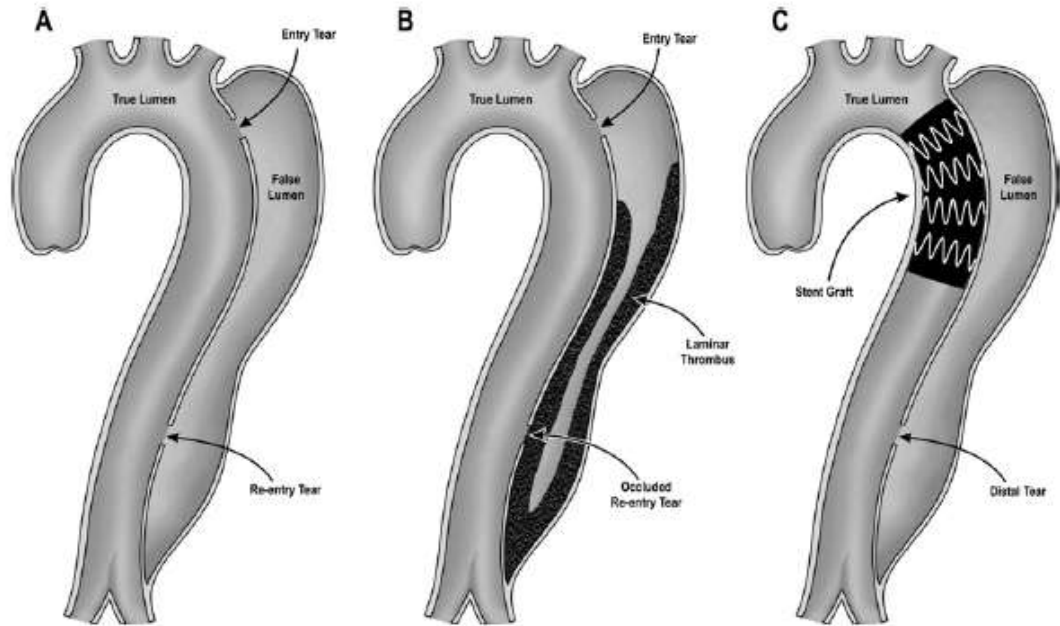
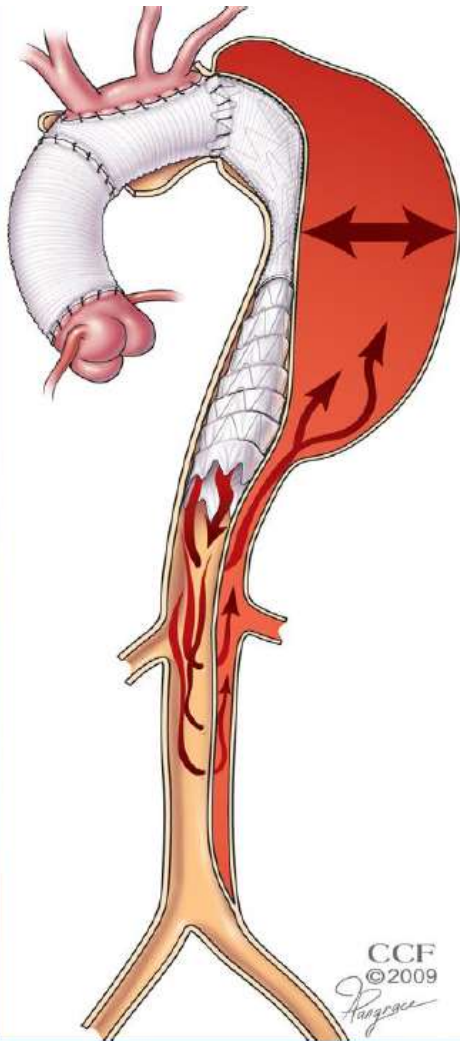
High Risk Patient in Uncomplicated Type B AD



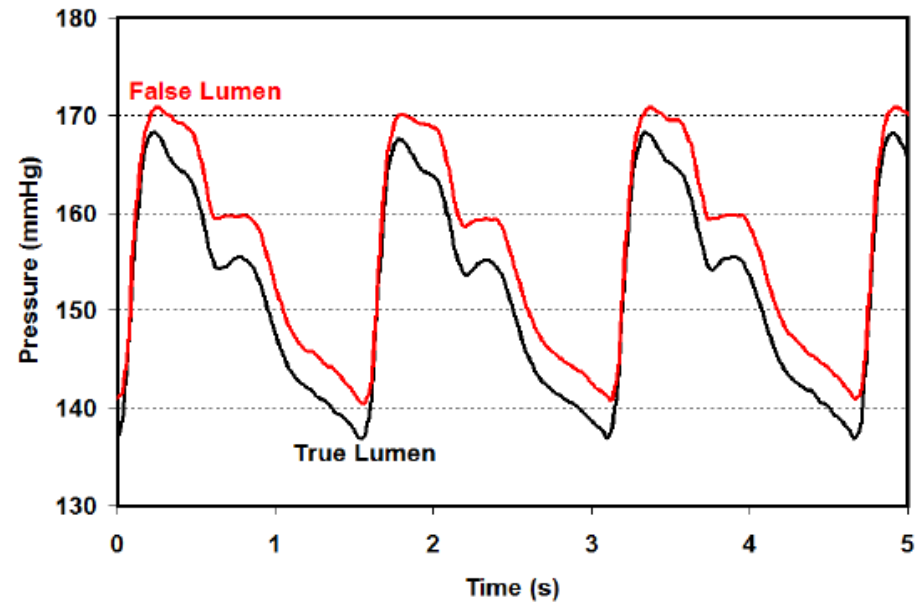
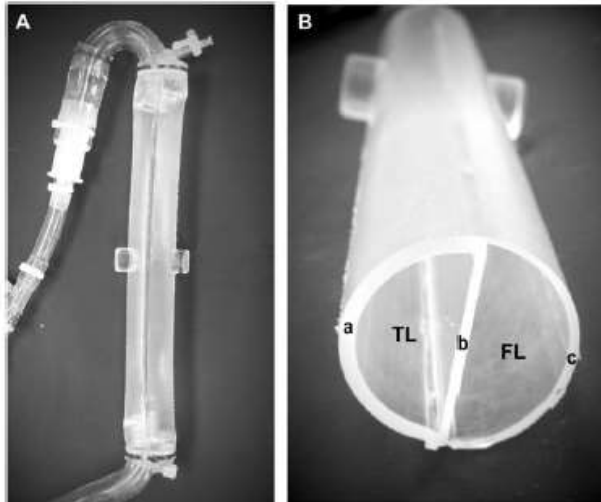
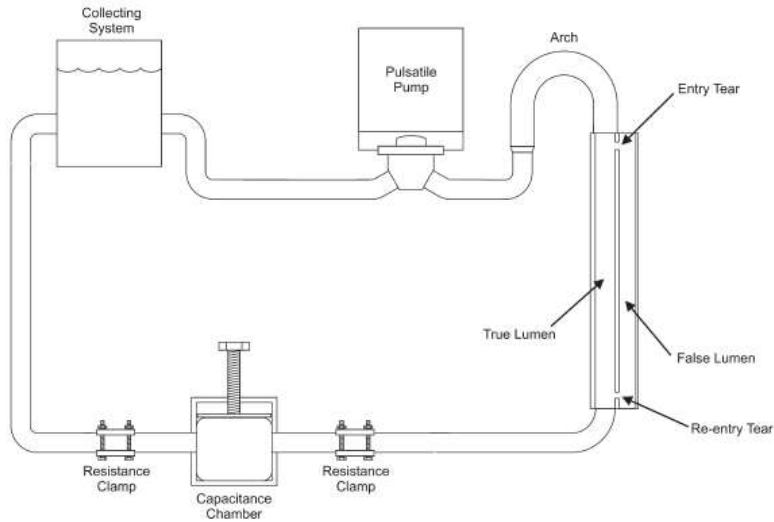
Occluded False Lumen is Related to Good Prognosis



Residual Re-entry Site And False Lumen Pressure ?

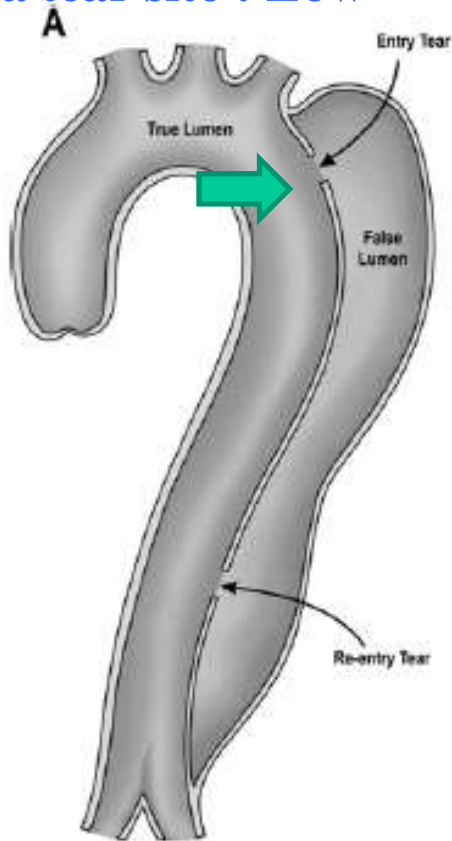


Residual Re-entry Site And False Lumen Pressure ?

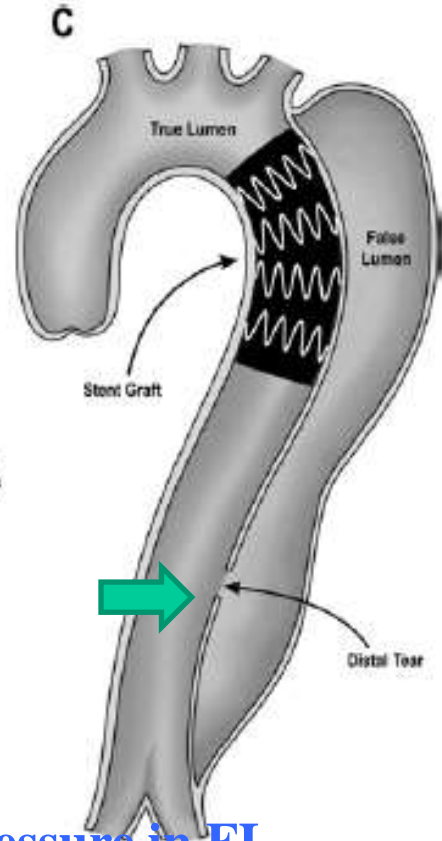
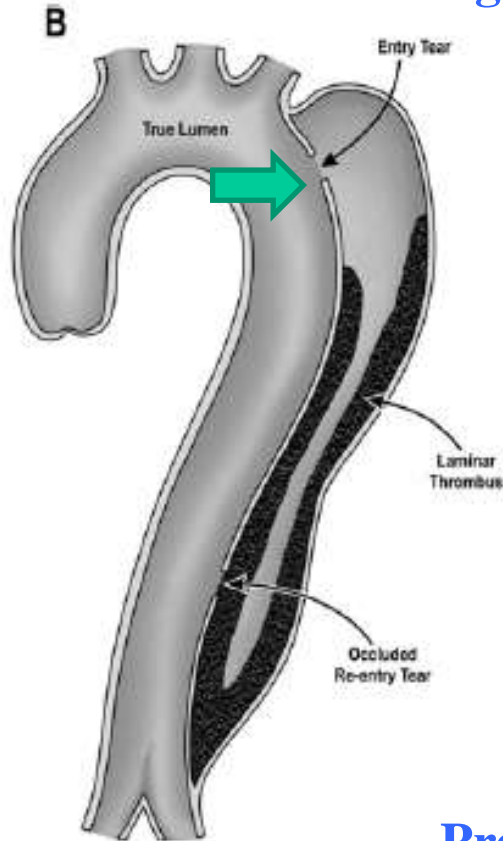


Residual Re-entry Site And False Lumen Pressure ?

Pressure in FL
at intima tear site : Low

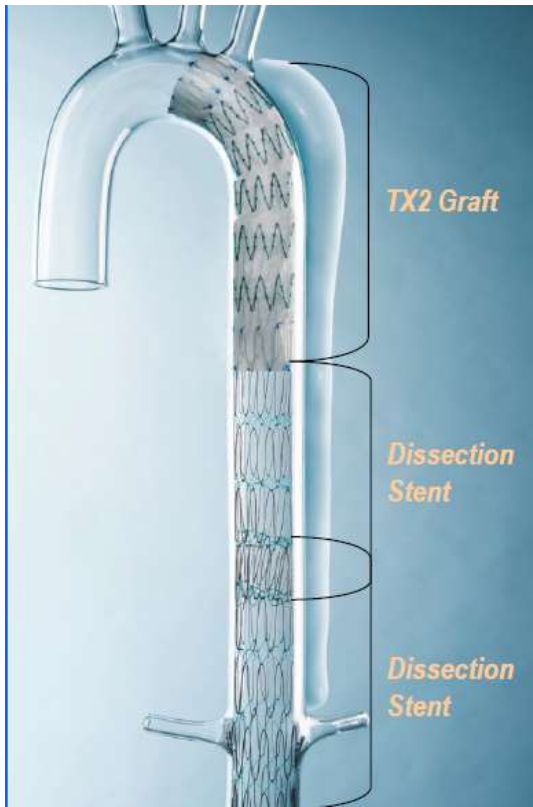


Pressure in FL
at intima tear site : High



Pressure in FL
at re-entry site : High

Petticoat Technique : Stable Trial

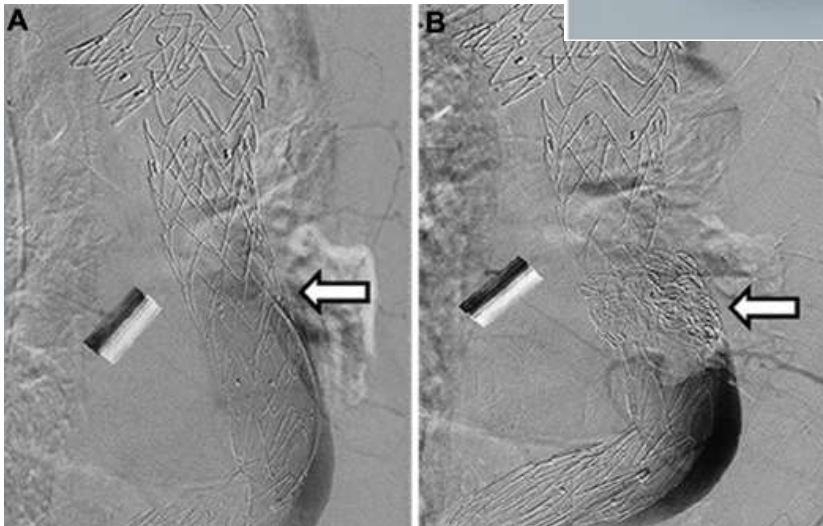
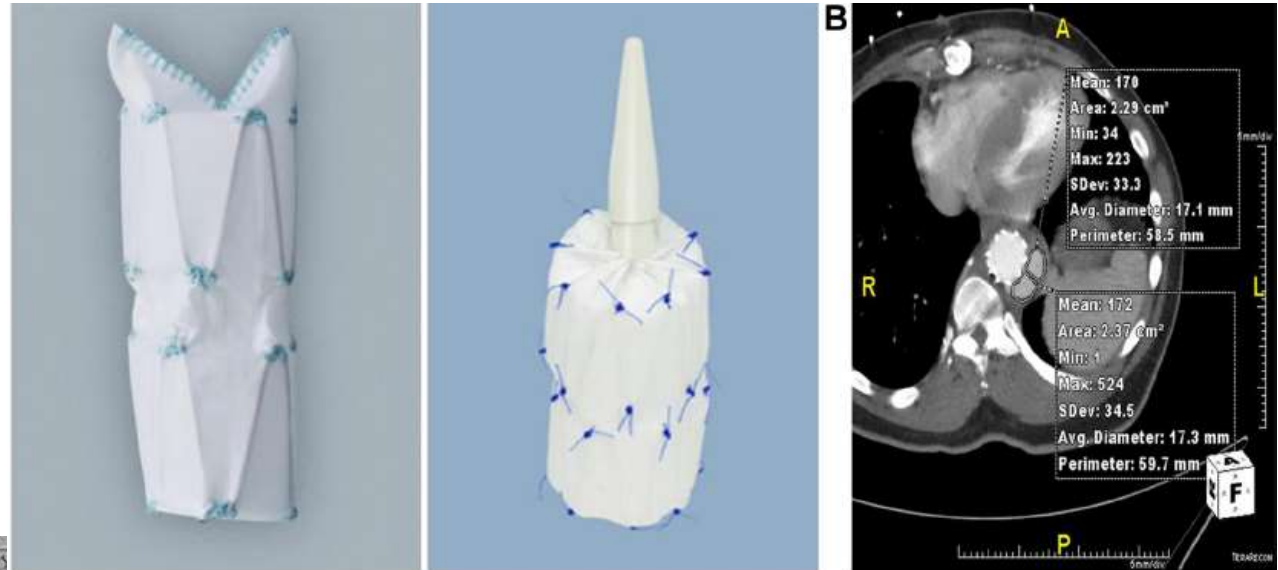


- **Prospective trial on the endovascular treatment of complicated type B AD**
- **86 pts**
- **30 day mortality : 4.7%**
 - 1 yr mortality : 11.7%**
 - 2 yr mortality : 15.3%**
- **Aortic Growth**
 - 1 yr : 20%**
 - 2 yr : 26%**
- **Positive aortic remodelling**

Iliac Plug Device and Coil embolization for Occlusion of False Lumen

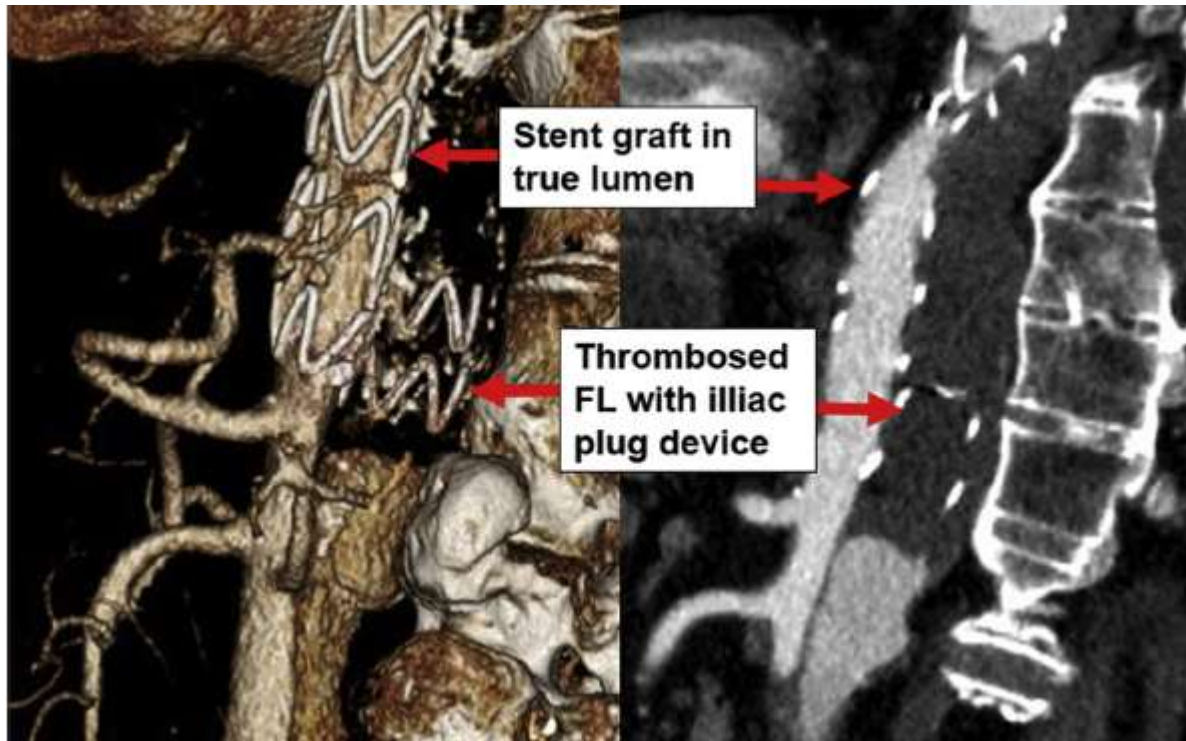


Iliac Plug



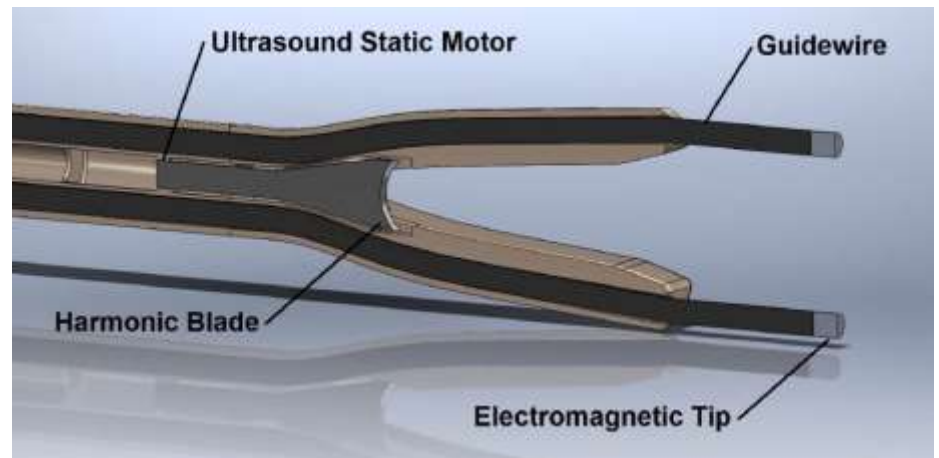
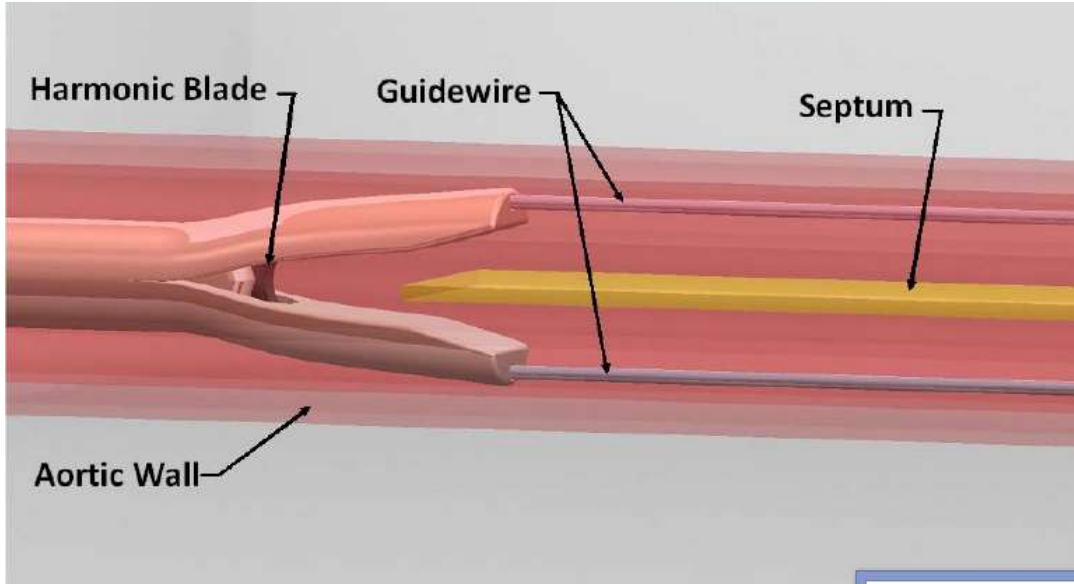
Coil embolization

Iliac Plug Device and Coil embolization for Occlusion of False Lumen



- 15 patients
- Endoleak : 29%
- Erosion or rupture of false lumen ???

New Device for Fenestration at Residual AD

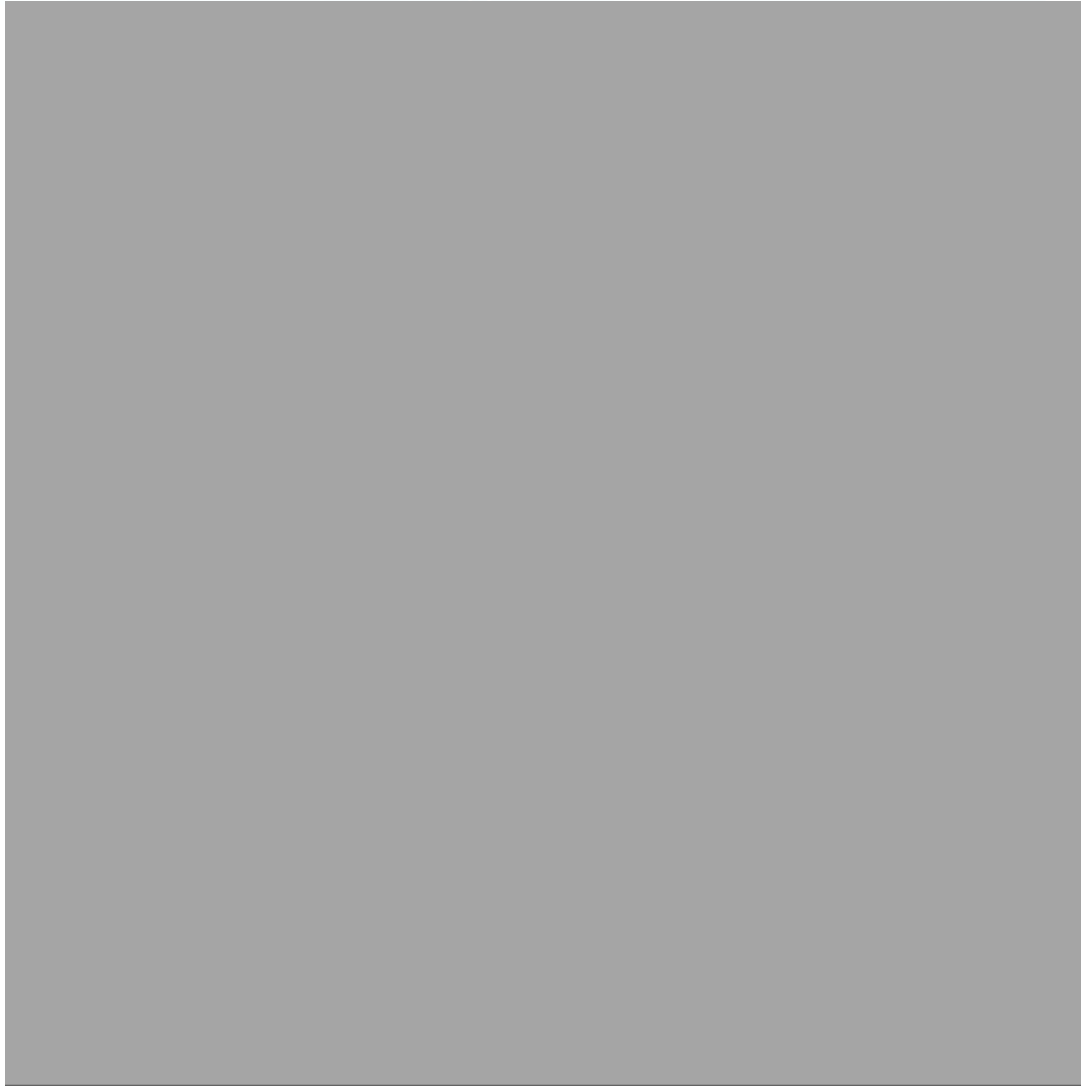


Which Patients Will Benefit from Early TEVAR in Uncomplicated Acute Type B Dissection?



- 1. Aortic Diameter > 40mm**
- 2. Diameter of False Lumen > 22mm**
- 3. Length of Inimal tear by TEE > 10mm**
- 4. High Pressure in the False Lumen**

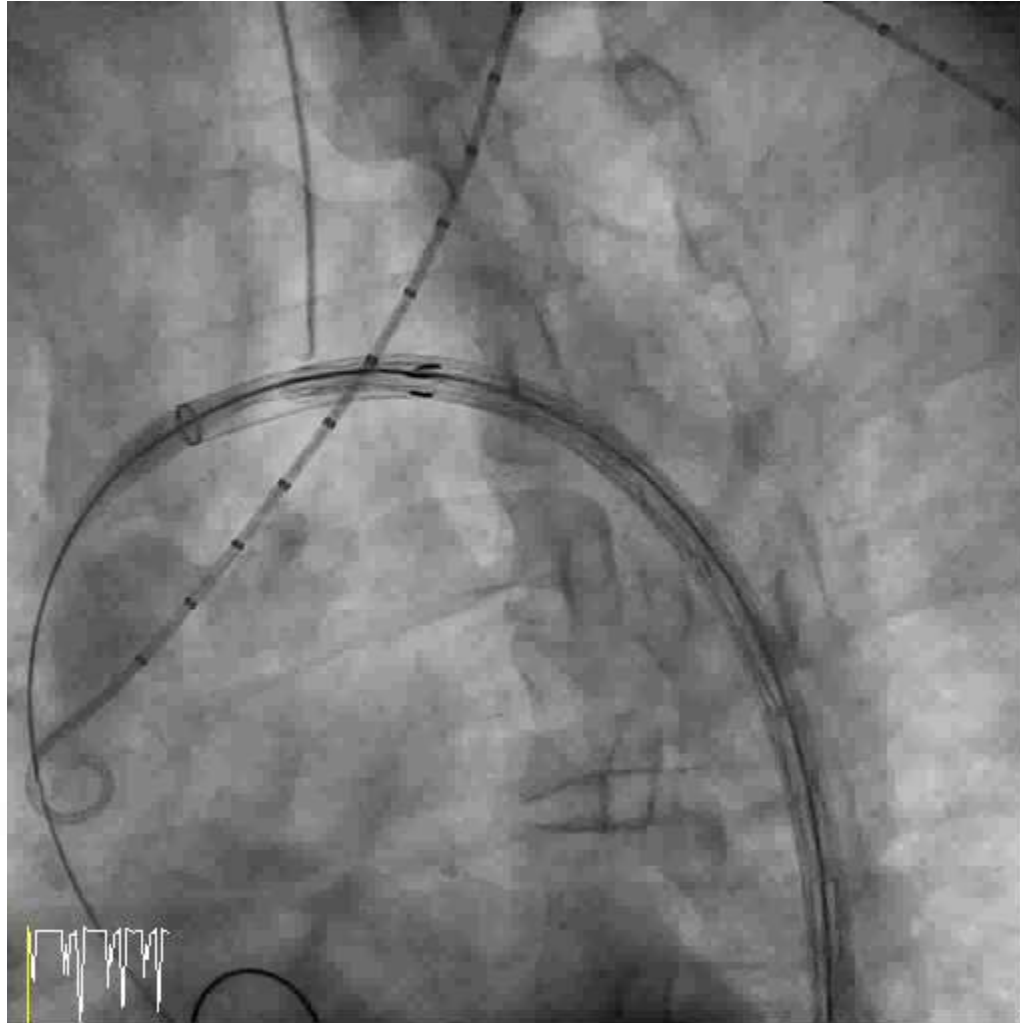
Case 3 : Aortic Stent Graft for Malperfusion



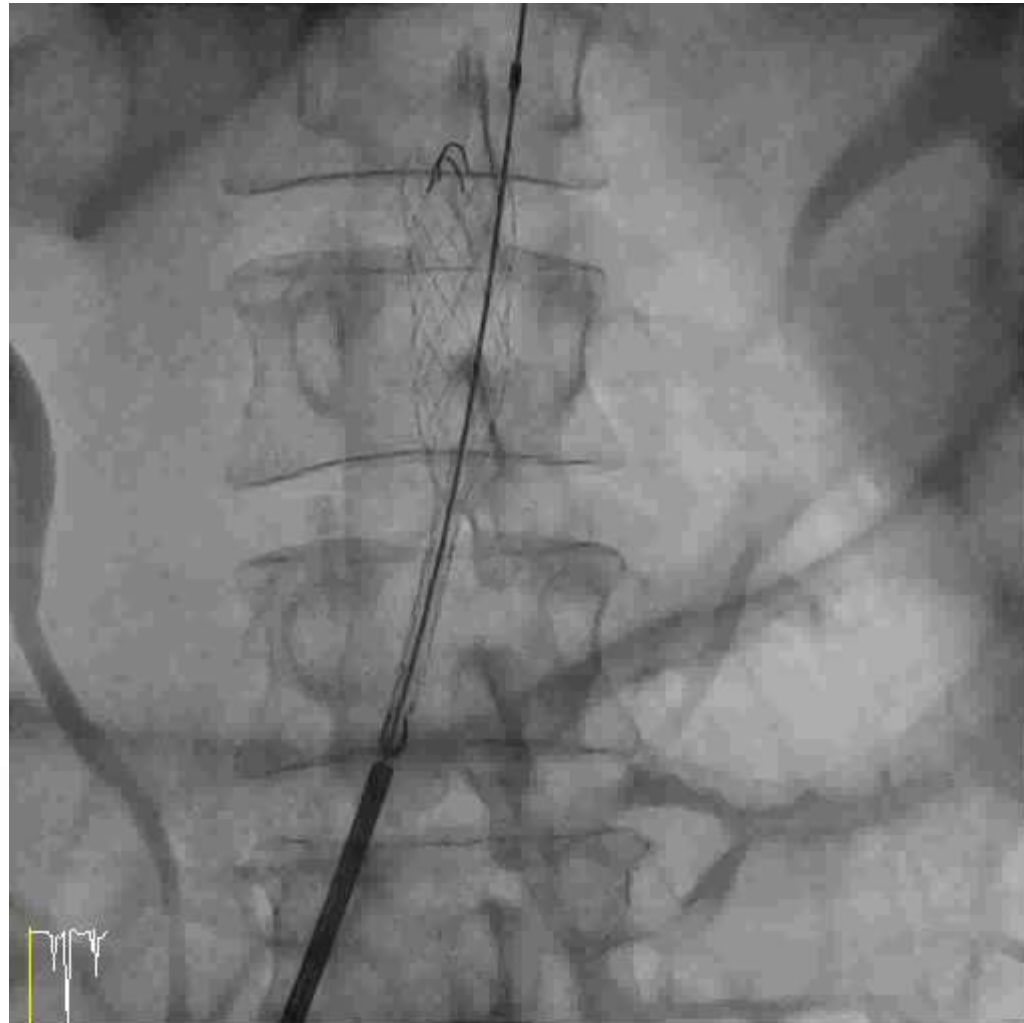
Case 3 : Aortic Stent Graft for Malperfusion



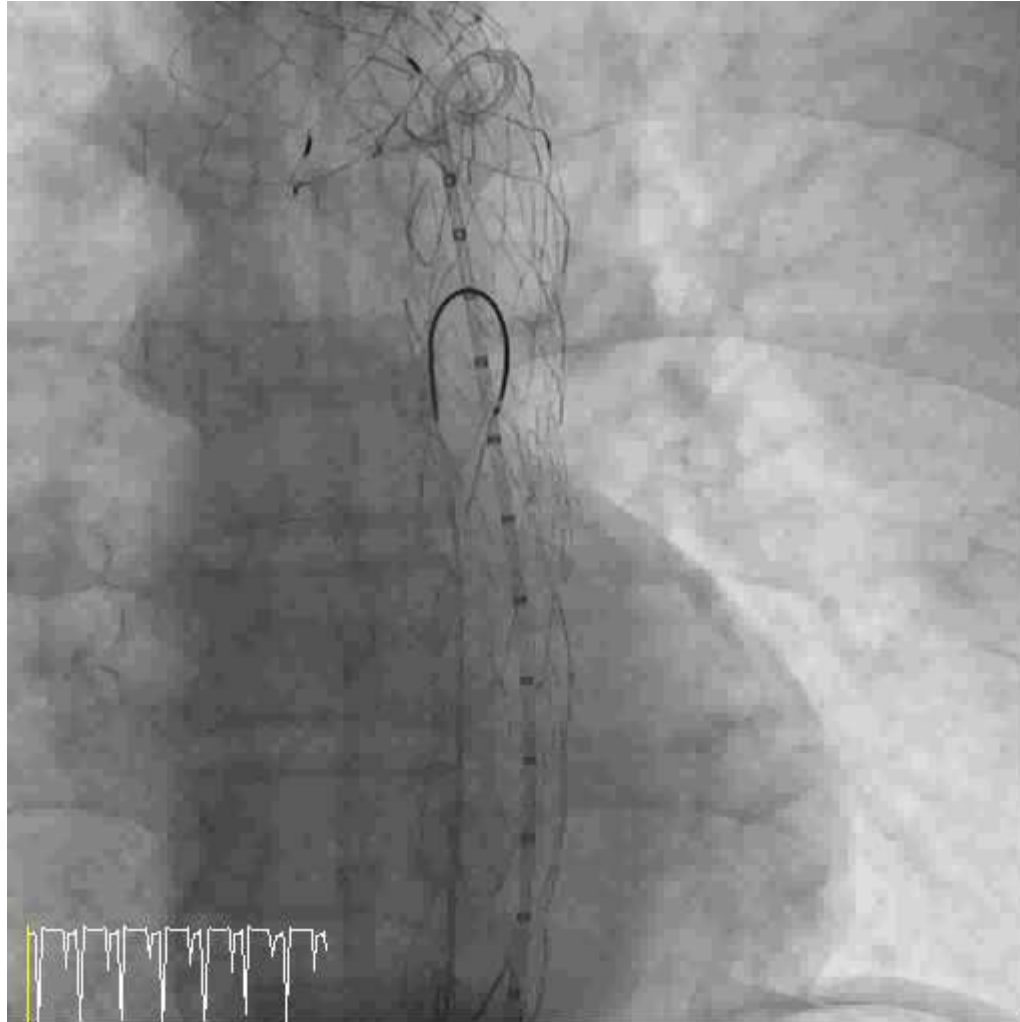
Case : Aortic Stent Graft for Malperfusion



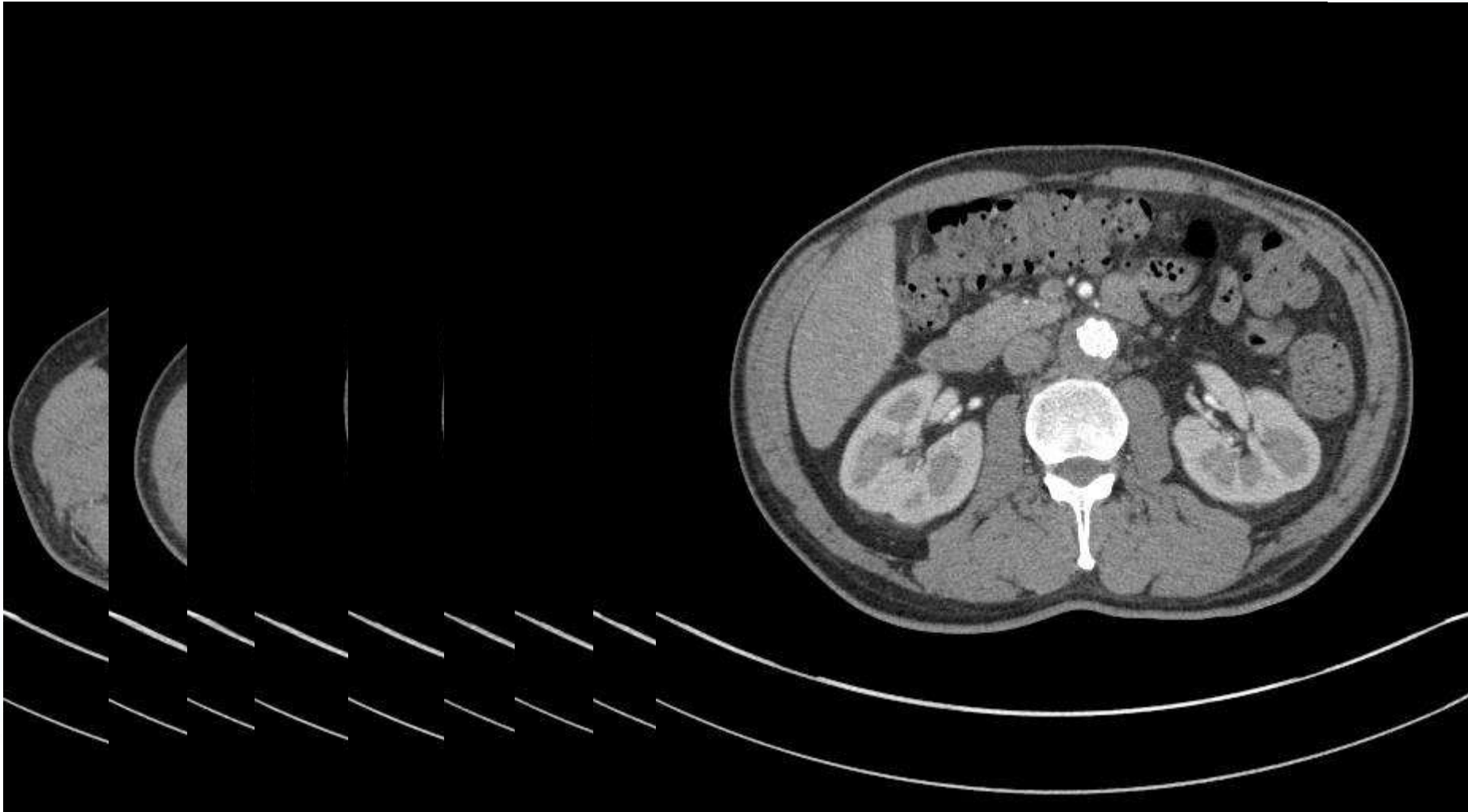
Case : Aortic Stent Graft for Malperfusion



Case 3 : Aortic Stent Graft for Malperfusion



CT after 7 Days



CT after 7 Days



SUMMARY



- **Acute complicated distal dissections : TEVAR**
- **Acute high-risk uncomplicated : Consider delayed TEVAR**
- **Acute low-risk uncomplicated : medical**
- **Chronic with aneurysmal change : TEVAR**

Endovascular Treatment for complicated type B aortic dissection with malperfusion syndrome : Pusan National University Data



Characteristic	Total n=21
Sex	
Male	17
Female	4
Age	54.24 (31-78)
Cormorbidities/risk factors	
Hypertension	16
Smoker	15
Previous coronary artery disease	2
Diagnosis	
Aortic dissection type A	4
Aortic dissection type B	17
Presentation	
Visceral ischemia	5
Limb ischemia	11
Renal ischemia	10
Neurologic deficit	3

Malperfusion syndrome involved in

celiac artery 4
 superior mesenteric artery 1
 renal artery 10
 iliac artery 11
 common carotid artery 2
 left subclavian artery 1
 Distal aorta 2

Management

aortic stent graft 10(47%)
selective stenting 31 arteries
 fenestration 1

Technical success : 100%(21/21).

Mortality rate : 4.7%(1/21)

Follow up duration: 32.5 months

Endovascular Treatment in Ruptured Type B AD : Pusan National University Data



Clinical outcomes for Ruptured aortic dissection, n=11	
Technical success	81.8%
Cumulative events	
Aorta related death	1(9.1%)
Secondary intervention	0
Major stroke/Paraplesia	1 (9.1%)
Secondary endoleak	2 (18.2%)

Multicenter Prospective Study in Korea : TEVAR vs. Medical Treatment for High Risk Uncomplicated AD



TEVAR Registry

Korean Collaborative
Thoracic Aortic Aneurysm Study

Welcome 관리자 [LOGOUT]

Home | TEVAR Registry Case Report |

LOGIN 회원로그인

Welcome 관리자
[Admin Mode] [My Account]

Member's LOGOUT



TAA

번호 배정

FAMILYSITE 패밀리사이트



WEBHARD
SYSTEM

NOTICE 공지사항

- 회원가입후 모든 서비스를 이용하실 수 있습니다

NEWS 게시판

- TEVAR Registry가 시작됩니다.

Multicenter Prospective Study in Korea : TEVAR vs. Medical Treatment for High Risk Uncomplicated AD



TEVAR Registry
Korean Collaborators on **Stent-graft** Techniques for Thoracic Aortic Aneurysm & Dissection Repair

Welcome 관리자 (Logout) Home | TEVAR Registry Case Report | TEVAR Notice | TEVAR News

- Case Report List
- 번호 변경
- 병명 관리

ENROLLMENT

>> ENROLLMENT

- Site ID#	<input type="text" value="1"/>	
- Subject ID#	<input type="text" value="1"/>	
- Patient Name	<input type="text" value="홍길동"/>	
- Enrolled Date	<input type="text" value="1935-01-01"/>	(4K, yyyy-mm-dd)

1. Inclusion criteria

- Clinical criteria

- Age 20 years of older	<input checked="" type="radio"/> Yes <input type="radio"/> No
- Uncomplicated type B AD with 아래 3가지중 하나 가일때	<input checked="" type="radio"/> Yes <input type="radio"/> No
- Maximum aortic diameter > 40mm or	<input checked="" type="radio"/> Yes <input type="radio"/> No
- Maximum false lumen diameter > 20mm or	<input checked="" type="radio"/> Yes <input type="radio"/> No
- Intimal tear length > 10mm by TEE	<input type="radio"/> Yes <input checked="" type="radio"/> No

- Anatomical criteria

- Uncomplicated type B AD with 아래 3가지중 하나 가일때 Maximum aortic diameter > 40mm or Maximum false lumen diameter > 20mm or Intimal tear length > 10mm by TEE	<input checked="" type="radio"/> Yes <input type="radio"/> No
- Proximal landing zone에 left subclavian artery에서 10mm 이상인 경우	<input checked="" type="radio"/> Yes <input type="radio"/> No
- 시술시기 : 가능하면 AD 발발후 14일이상시 시술가능시, 그전도 가능	<input checked="" type="radio"/> Yes <input type="radio"/> No

2. Exclusion criteria

- Clinical criteria

- 출혈경향이 있는경우	<input type="radio"/> Yes <input checked="" type="radio"/> No
- 조절되지 않는 고혈압	<input type="radio"/> Yes <input checked="" type="radio"/> No
- 조절되지 않는 당뇨 (Hb A1c > 10)	<input type="radio"/> Yes <input checked="" type="radio"/> No
- 시술을 할수가 없는 환자	<input type="radio"/> Yes <input checked="" type="radio"/> No

Aortic Dissection Prospective Study

많은 참여 부탁드립니다



Thank you for your attention