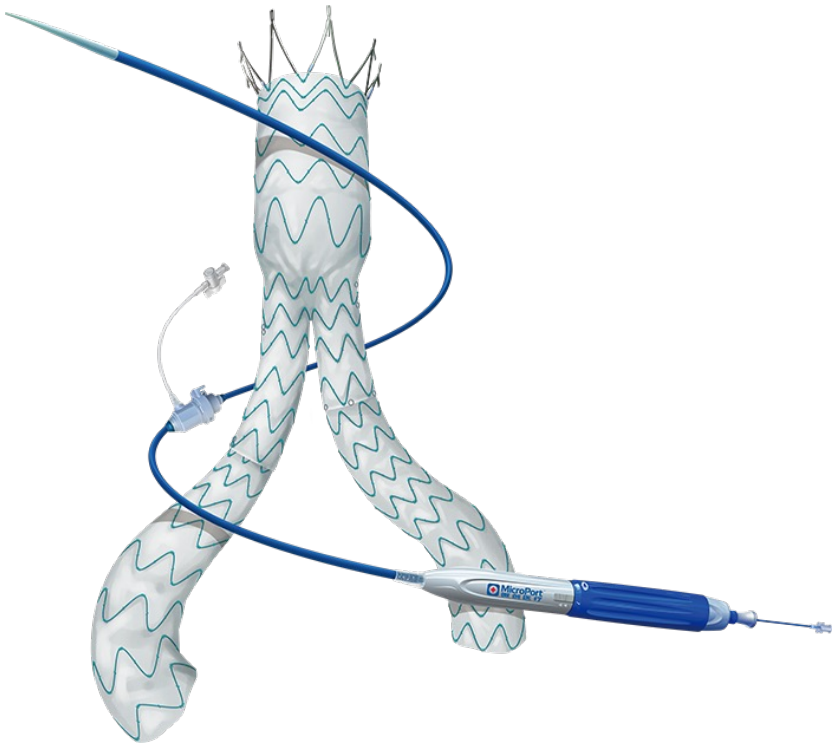

Endoprothèses aortiques : Qui, quand, comment?

Philippe Charbonneau MD
Chirurgien vasculaire
Co-directeur du centre aortique du CHUM
Directeur du fellowship aortique avancé du CHUM

CHUM
CENTRE AORTIQUE

umontréal

Conflit d'intérêt

Consultant et proctor chez Cook Medical

Objectifs

- Reconnaitre les indications de traiter un anévrisme aortique basé sur son étiologie et sa localisation
- Connaitre et comprendre les options chirurgicales et endovasculaires pour traiter ces anévrismes
- Différentier une endofuite inquiétante d'une endofuite bénigne

Introduction

Ambroise Paré (16e siècle)

« les anévrismes qui surviennent dans les organes internes sont incurables »

a préconisé l'application d'une ligature proximale aux anévrismes mais ne croyait pas que le sac devait être ouvert en raison du danger d'hémorragie grave et fatale.

Introduction

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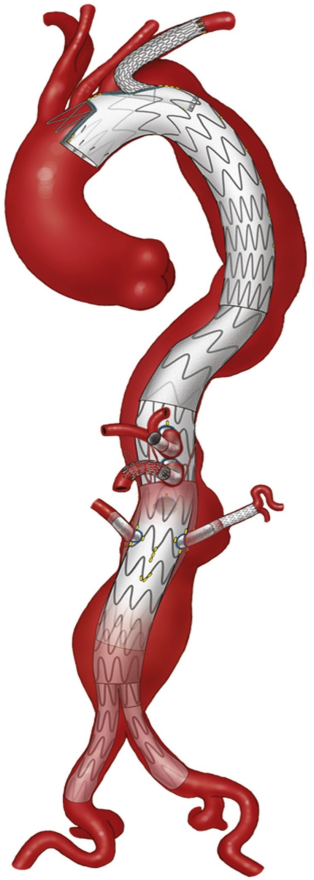


Aujourd'hui

Introduction

Ambroise Paré (16e siècle)

« les anévrismes qui surviennent dans les organes internes sont incurables » a préconisé l'application d'une ligature proximale aux anévrismes mais ne croyait pas que le sac devait être ouvert en raison du danger d'hémorragie grave et fatale.

Aujourd'hui

HISTOIRE

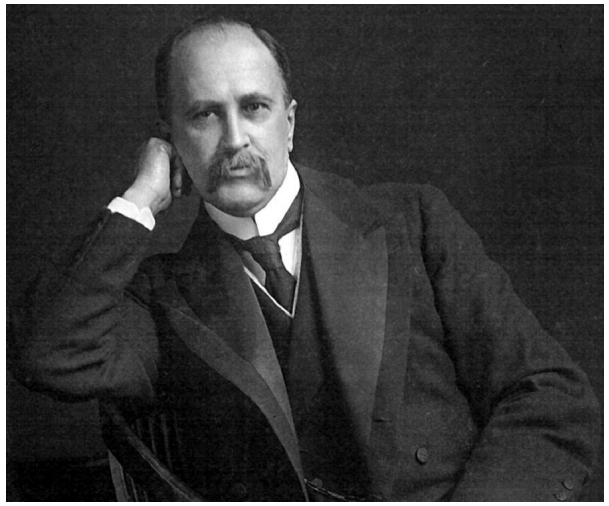
Introduction

2000 av J.C.

Sur un papyrus, les anévrismes artériels (probablement périphériques) ont été décrits.
Le traitement recommandé était:
« Traitez-le avec un couteau et brûlez-le avec du feu pour qu'il ne saigne pas trop. »

Introduction

1900



Sir William Osler

« Il n'y a pas de maladie plus propice à l'humilité clinique que les anévrismes de l'aorte. »

Introduction

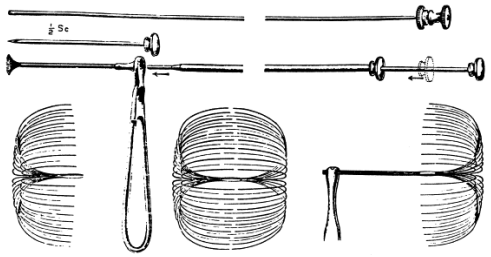
1850-1950

Variété d'approches indirectes pour fournir des soins palliatifs et prévenir la rupture

Introduction

1850-1950

Variété d'approches indirectes pour fournir des soins palliatifs et prévenir la rupture

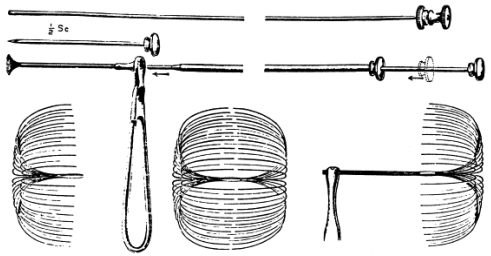


Électrolyse et
coagulation électrothermique

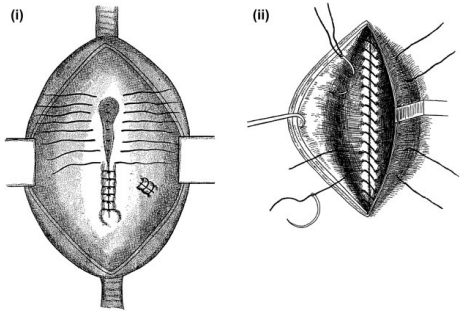
Introduction

1850-1950

Variété d'approches indirectes pour fournir des soins palliatifs et prévenir la rupture



Électrolyse et
coagulation électrothermique

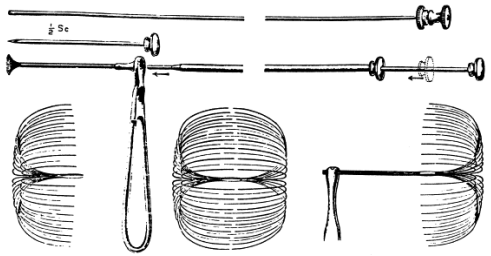


Endoanévrysmorraphie

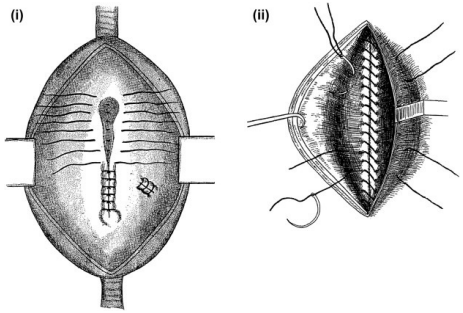
Introduction

1850-1950

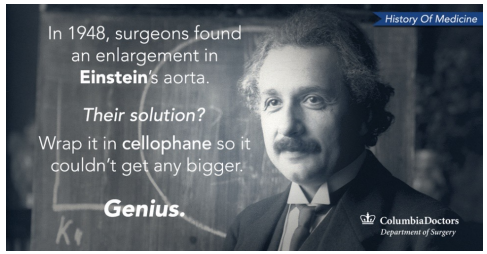
Variété d'approches indirectes pour fournir des soins palliatifs et prévenir la rupture



Électrolyse et
coagulation électrothermique



Endoanévrysmorraphie



Fibrose périartérielle
(cellophane)

Introduction

1923

Ligature aortique - 1ère ligature aortique documentée

ANEURYSM OF THE ABDOMINAL AORTA AT ITS BIFURCATION INTO THE COMMON ILIAC ARTERIES*

A PICTORIAL SUPPLEMENT ILLUSTRATING THE HISTORY OF CORINNE D., PREVIOUSLY REPORTED AS THE FIRST RECORDED INSTANCE OF CURE OF AN ANEURYSM OF THE ABDOMINAL AORTA BY LIGATION

RUDOLPH MATAS, M.D.
NEW ORLEANS, LA.

THE HISTORY of this aneurysm, and of the ligation of the abdominal aorta performed for its cure, was originally presented, as a preliminary report, before the American Surgical Association at its meeting in Baltimore, April 18, 1924 (Tr. Am. Surg. Assn., **42**, 603–616, 1924), and in the ANNALS OF SURGERY, **81**, 457–464, February, 1925.

Introduction

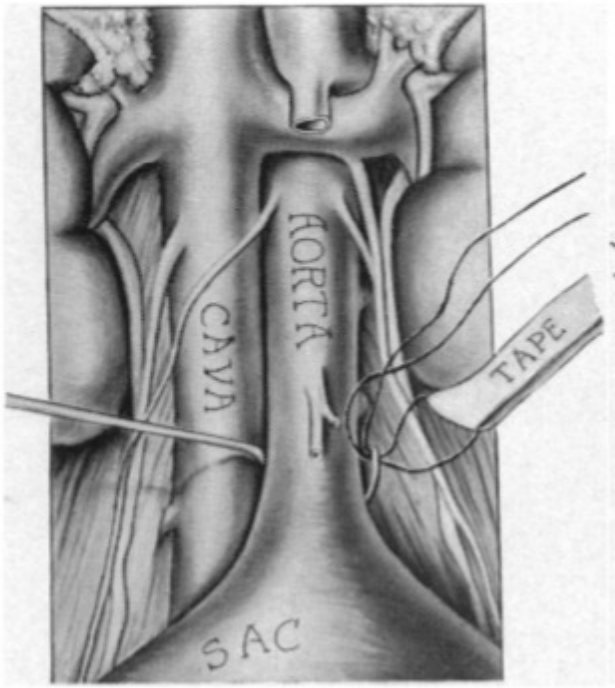


FIG. 7.—Ligation of the aorta immediately above the sac. One-half inch cotton tape led around artery by catgut traction loop and aneurysm needle.

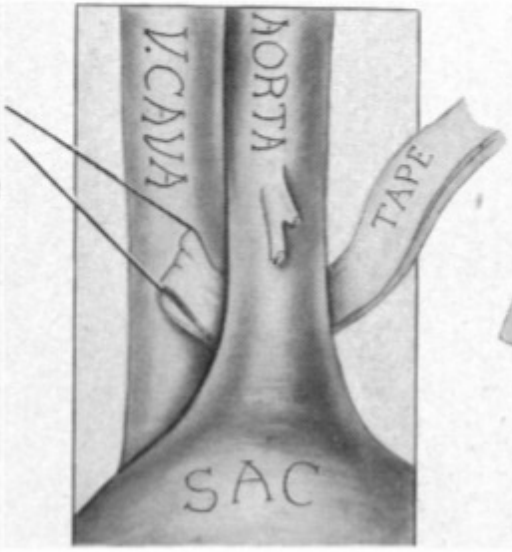


FIG. 8.—Continuation of Figure 7.

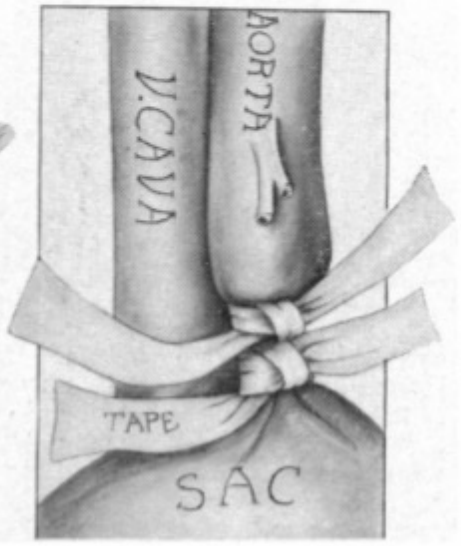


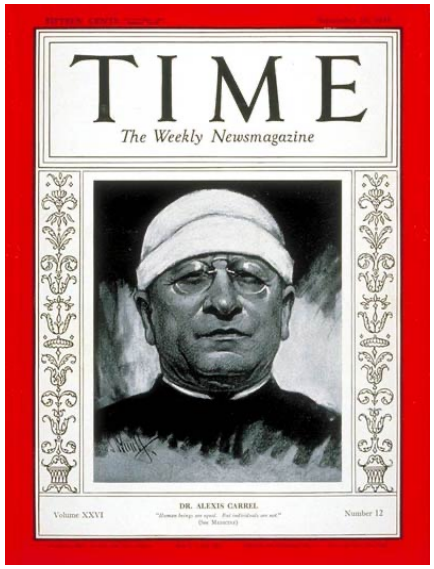
FIG. 9.—Tape cut in two and applied as double ligature to the artery. Upper tied first; shows first hitch in knot.

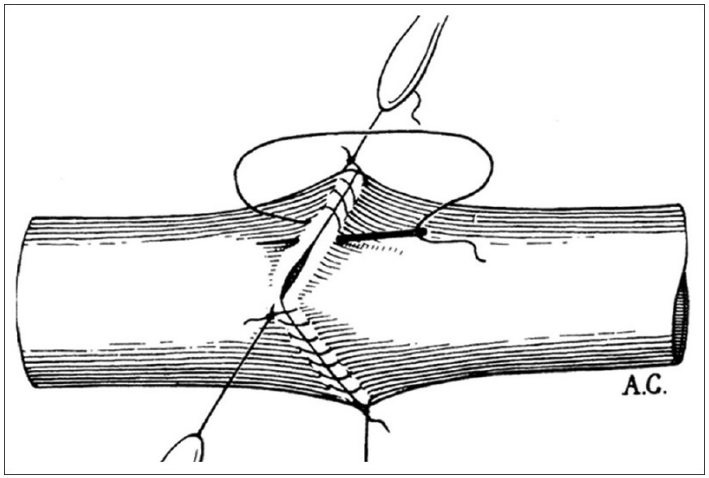
Introduction

« Seulement 24 cas de ligature dans la littérature.
Dans seulement 5 de ces cas, l'opération a été un succès. »

Introduction

1912





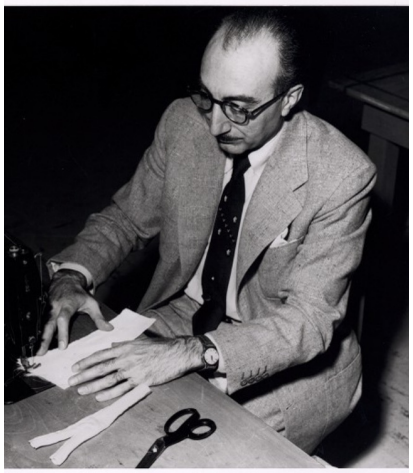
Alexis Carrel : Nobel de médecine pour l'anastomose et la greffe cellulaire

Introduction

1951

Charles Dubost (Paris) Première résection réussie d'un anévrisme de l'aorte abdominale avec homogreffe. Le patient est décédé 8 ans plus tard.

1953



DeBakey et Cooley, première résection **d'anévrisme de l'aorte thoracique descendante.**

Introduction

Introduction

1895

Roentgen observe pour la première fois les nouveaux rayons. Prix Nobel en 1901.

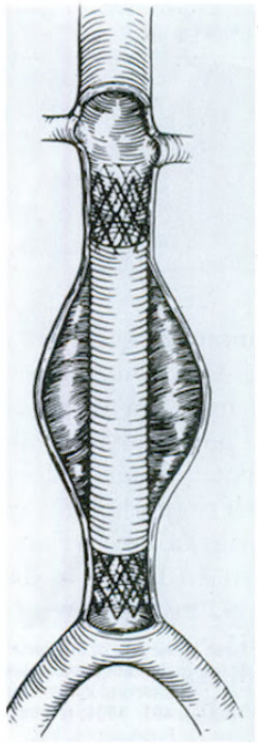
1987

Volodos (Ukraine) première réparation endovasculaire de l'aorte

Professor Nikolay Volodos (right) and his team preparing the first stent-graft delivery system for the first experimental procedure in 1984

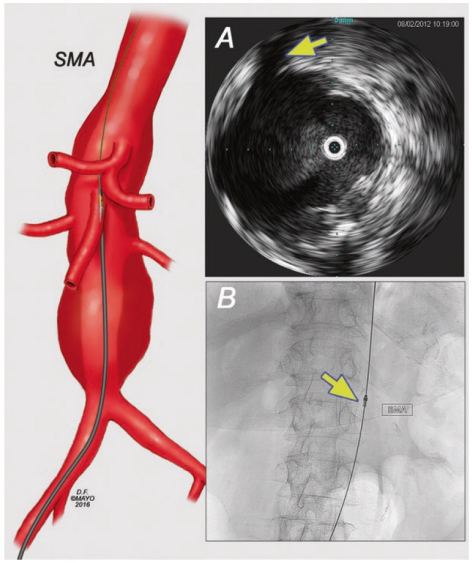
1990

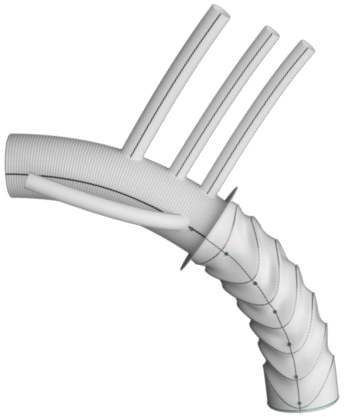
Parodi effectue le premier EVAR chez l'homme



2023

Introduction





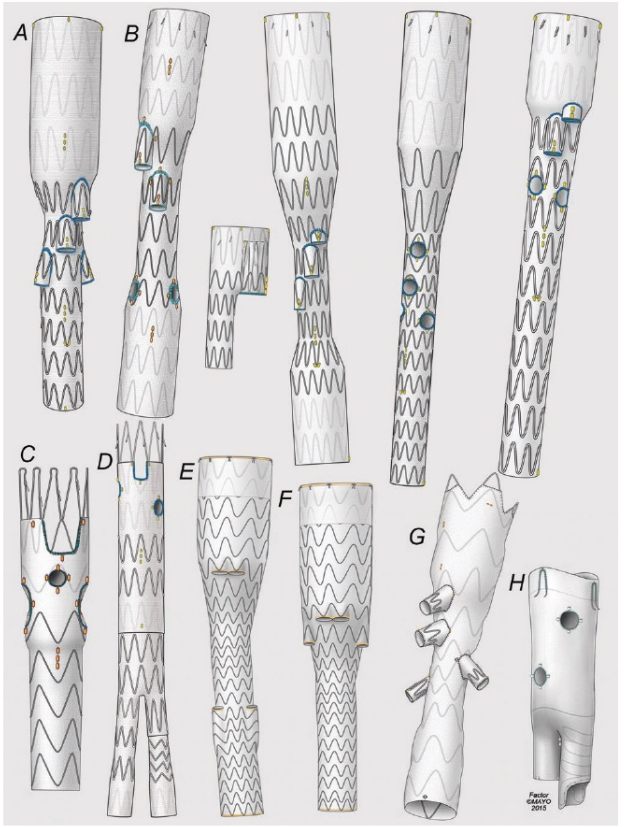


Fig. 14.16 Visceral incorporation devices include the Cook t-Branch (**a**), Cook patient-specific thoracoabdominal platform (**b**), Cook p-Branch (**c**), Cook ZFEN (**d**), Gore TAMBE retrograde (**e**), Gore TAMBE antegrade (**f**), Jotec TAAA branched (**g**), and Vascutek fenestrated (**h**). By permission of Mayo Foundation for Medical Education and Research. All rights reserved

INDICATIONS D'INTERVENTION

Indications - AAA

Urgence:

-Symptômes/Rupture

Électif:

-Diamètre aortique ≥ 5.5cm
-Progression rapide diamètre (>1cm/an)
-Maladie du collagène
-Hx familiale/personnelle
-Aortite infectieuse
-Forme sacculaire

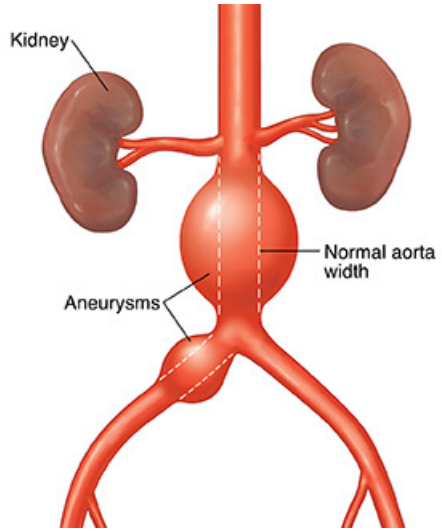


Table 130-4 Range of Potential Rupture Rates for a Given Size of Abdominal Aortic Aneurysm

AAA Diameter (cm)	12-Month Rupture Risk (%)
3.0-3.9	0.3
4.0-4.9	0.5-1.5
5.0-5.9	1-11
6.0-6.9	11-22
>7	>30

Indications - Aorte thoracique

Recommended size thresholds for intervention for thoracic aneurysms

	Aortic root	Ascending	Arch	Descending
Degenerative	**5.5** cm	**5.5** cm	**6.0** cm	**6.5** cm
Bicuspid aortic valve	**5.0**-5.5 cm	**5.0**-5.5 cm	**5.5** cm	**6.5** cm
Marfan syndrome	**5.0** cm	**5.0** cm	5.5-**6.0** cm	5.5-**6.0** cm
Familial aortopathy	**4.5**-5.0 cm	**4.5**-5.0 cm	5.5-**6.0** cm	5.5-**6.0** cm
Other genetic synd. (LDS, EDS, Turner)	**4.0**-5.0 cm	**4.2**-5.0 cm	5.5-**6.0** cm	5.5-**6.0** cm
Undergoing cardiac surgery	—	**4.5** cm	—	—
Marfan women anticipating pregnancy	**4.1**-4.5 cm			

2014 CJC THORACIC DISEASE

Indications

Mais au dela des diamètres…

- Risque opératoire (relié à l'anatomie aortique, comorbidités)
- Espérance de vie
- Volonté du patient

Indications

AAA ≥ 5.5 cm

AAT ≥ 6.0 cm

SUIVI
PETIT AAA

Suivi AAA

2019 ESVS AAA

Suivi échographique AAA

3 - 3.9 cm → 3 ans

4 - 4.9 cm → 1 an

5 - 5.4 cm → 3-6 mois

+

Consultation en chir. vasculaire

2019 ESVS AAA

Suivi AAA

→ **Écho 1 an**

2019 ESVS AAA

TRAITEMENTS

Types de traitements

1) Ouvert

2) Endovasculaire

3) Combinaison ouverte et endovasculaire

4) Observation vs Palliatif

Objectifs du traitement

1) Isoler l'anévrisme de la circulation

2) Préserver la circulation dans les artères impliquées / organes cibles

3) Le faire avec le moins de complications

4) Traitement qui persiste dans le temps

OPTIONS THÉRAPEUTIQUES

AORTE ABDOMINALE

CHUM
CENTRE AORTIQUE

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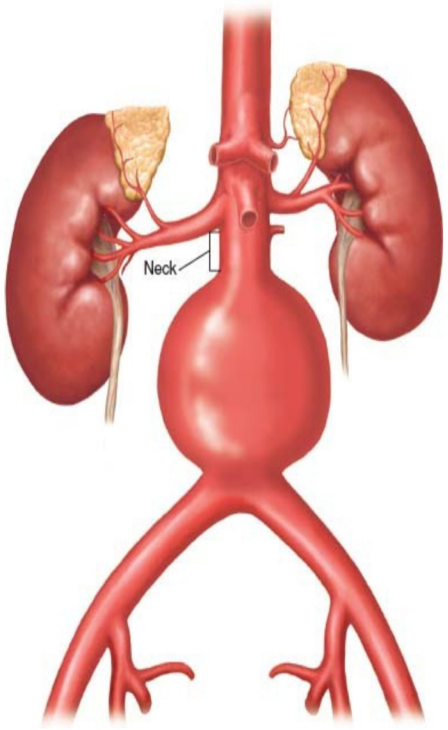
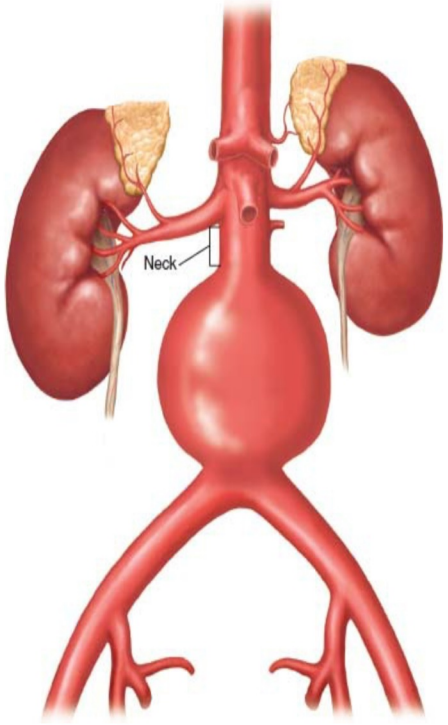
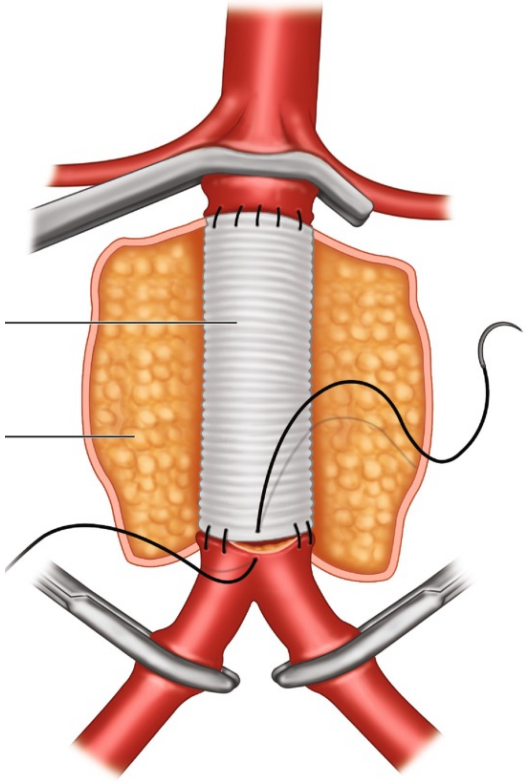
AAA infrarenal



AAA infrarénal – Cure ouverte





Indications: Jeune patient, habite loin d'un hôpital, maladie collagène, AAA mycotique, non-candidat à EVAR

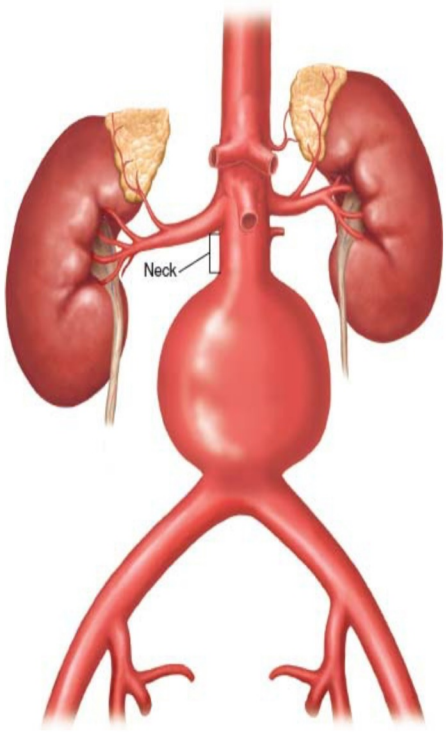
Complications:

-Court terme (30j):
Mortalité 3-4%, IM (10%), pneumonie(20%), IRA (10%)

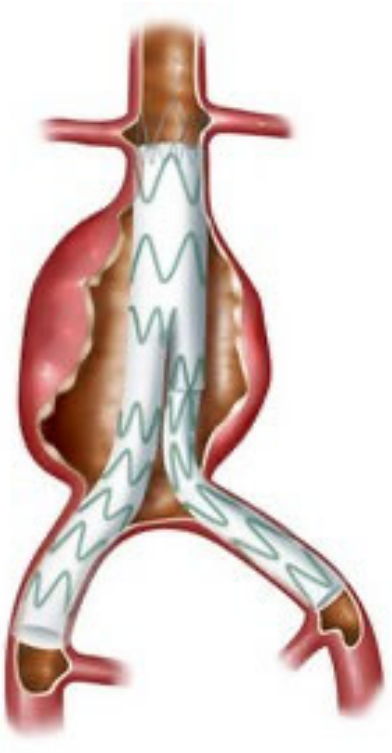
-Long terme: Hernies incisionnelles (30%), Trbl. Erectiles (20%)
infection de prothèse/fistule (2%), dégénération anévrismale (rare)

Surveillance: q5ans

AAA infrarénal - EVAR



→



Indications: Doit respecter les critères anatomiques du manufacturier

Complications:

-Court terme (30j):

Mortalité <1%, IM (2%), IRA (5%)

-Long terme: Endofuites (20%),ruptures (très rare), réinterventions (15-30%), infections (rare).

Surveillance:

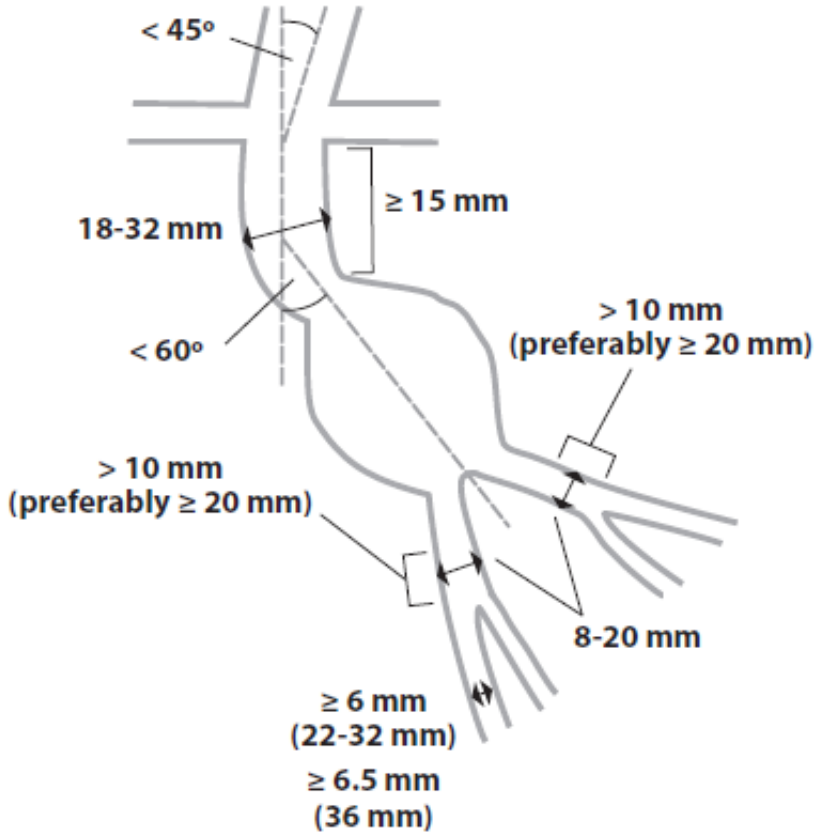
q1 an (ou plus rapproché si endofuite)

- **80% des interventions aortiques au CHUM**
- **Majorité en CDJ**

AAA Infrarénal – EVAR (différentes compagnies)

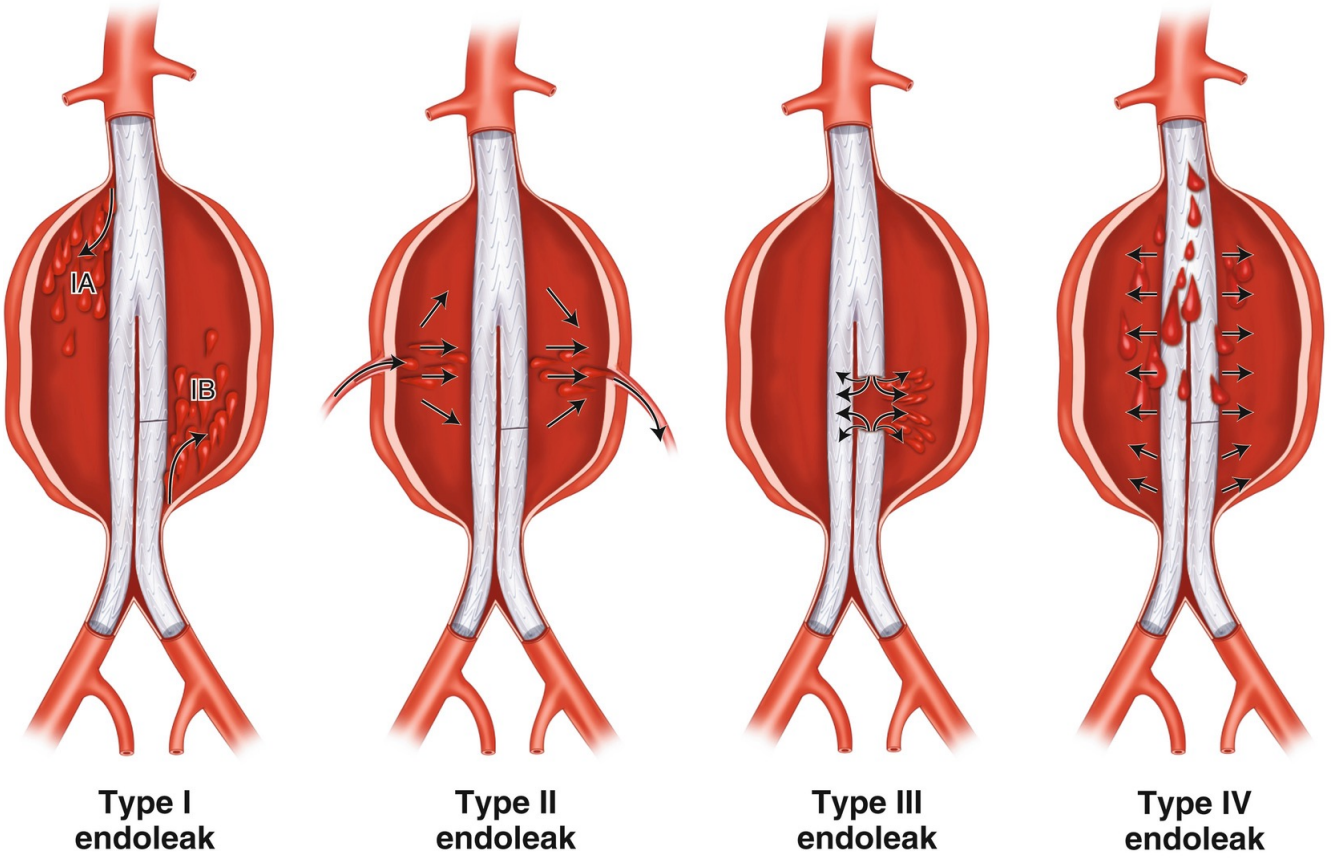
Figure 72.1 (A) Cook Zenith stent graft. (B) Lombard Medical Aorfix stent graft. (C) Medtronic Endurant stent graft. (D) Gore Excluder stent graft. (E) Endologix AFX stent graft. (F) Trivascular Ovation stent graft.

AAA Infrarénal – EVAR (Instructions manufacturiers)



AAA Infrarénal – EVAR (étapes)

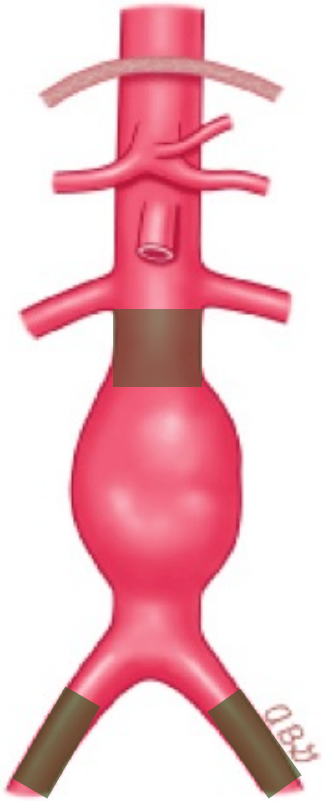
AAA Infrarénal – EVAR (endofuites)



AAA complexes

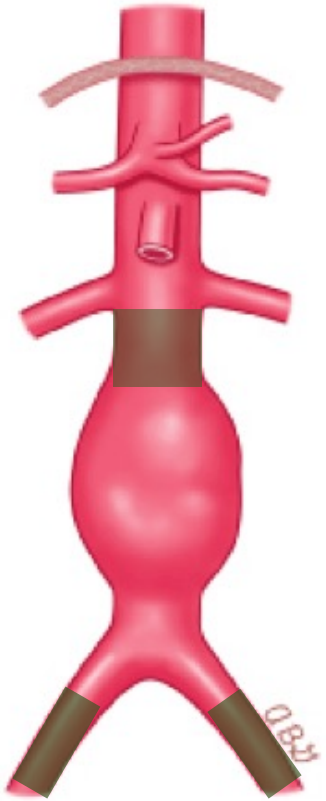
AAA complexes

Infrarénale

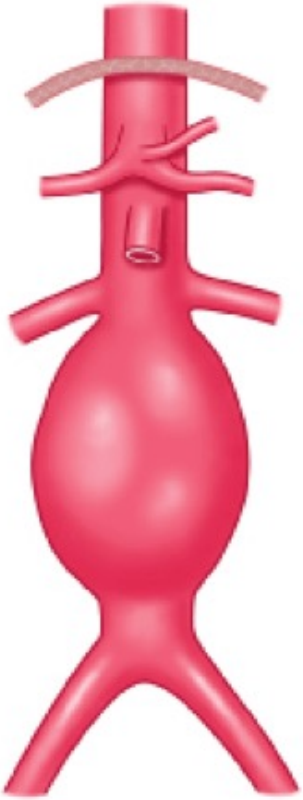


AAA complexes

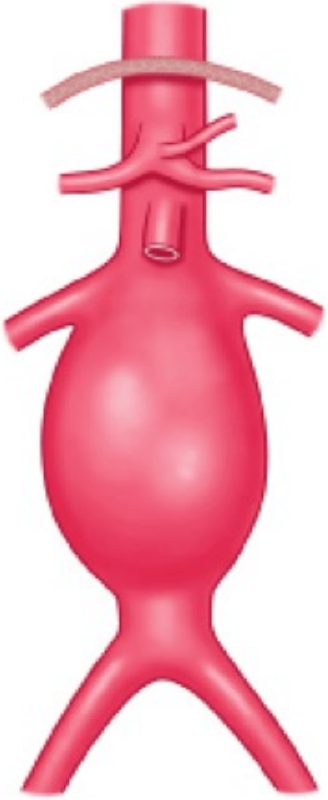
Infrarénale



Juxtarénal

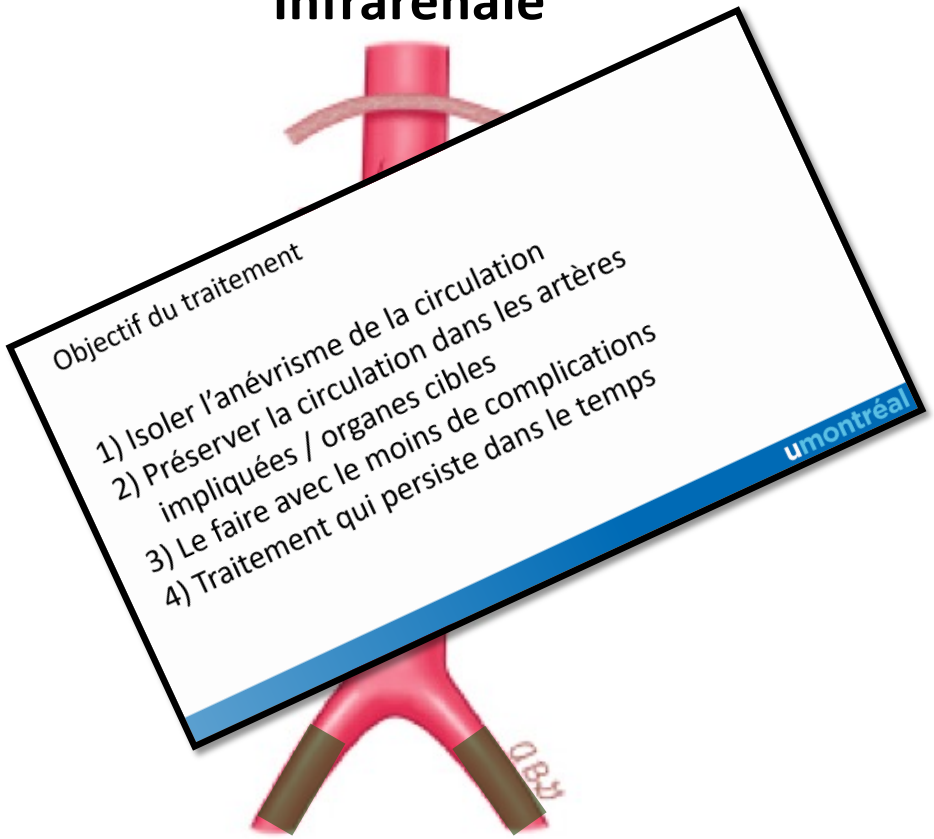


Pararénal



AAA complexes

Infrarénale



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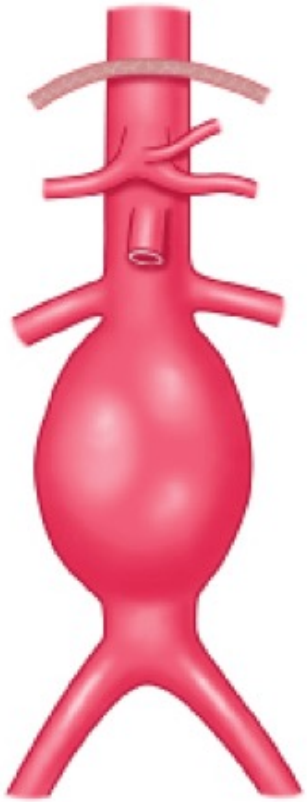
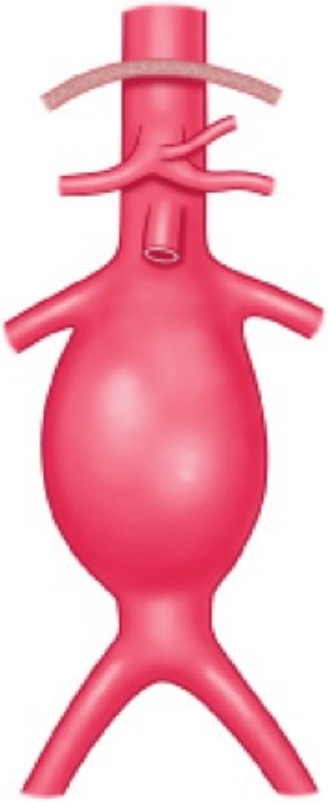
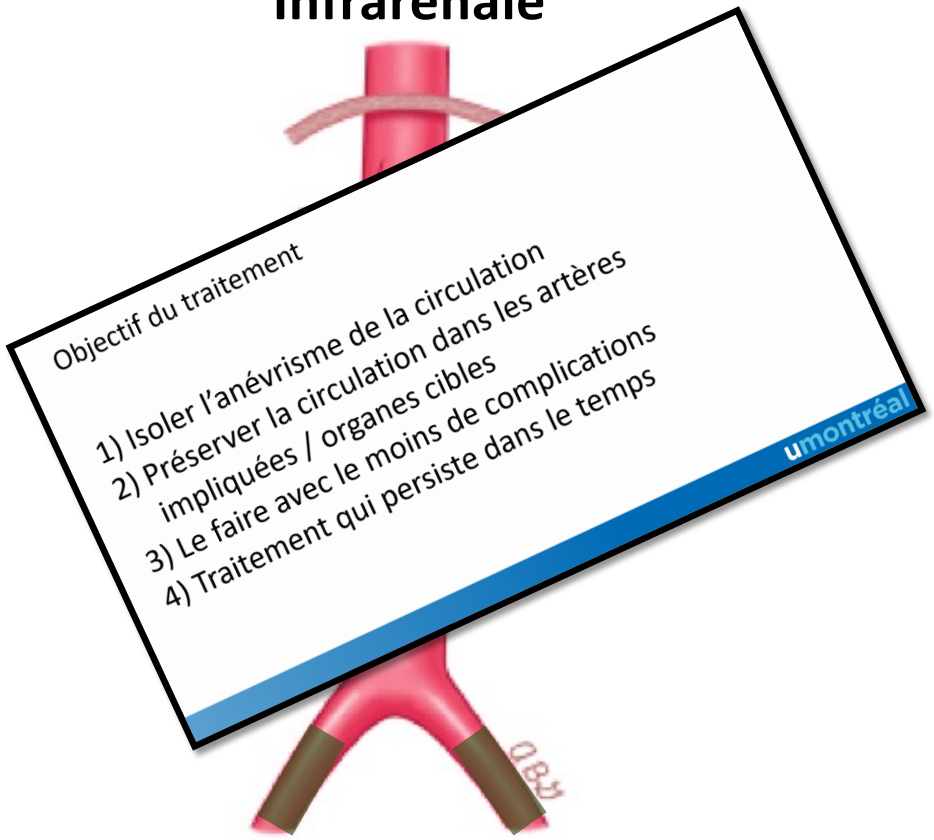


Pararénal

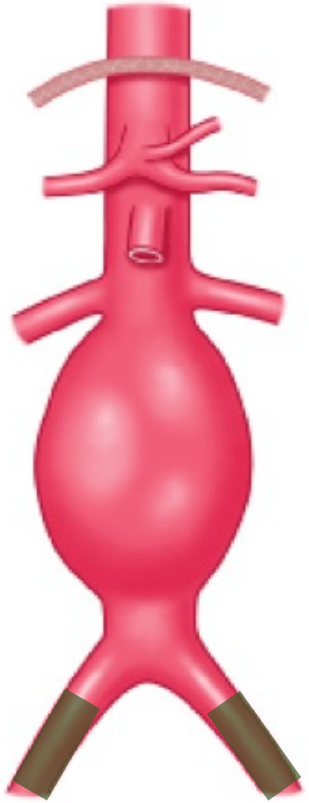


AAA complexes

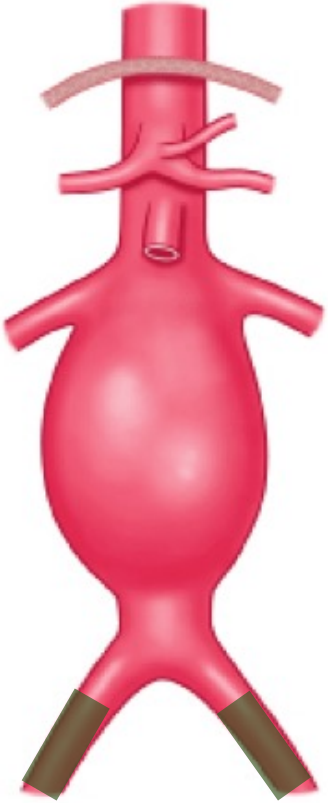
Infrarénale



Juxtarénal



Pararénal

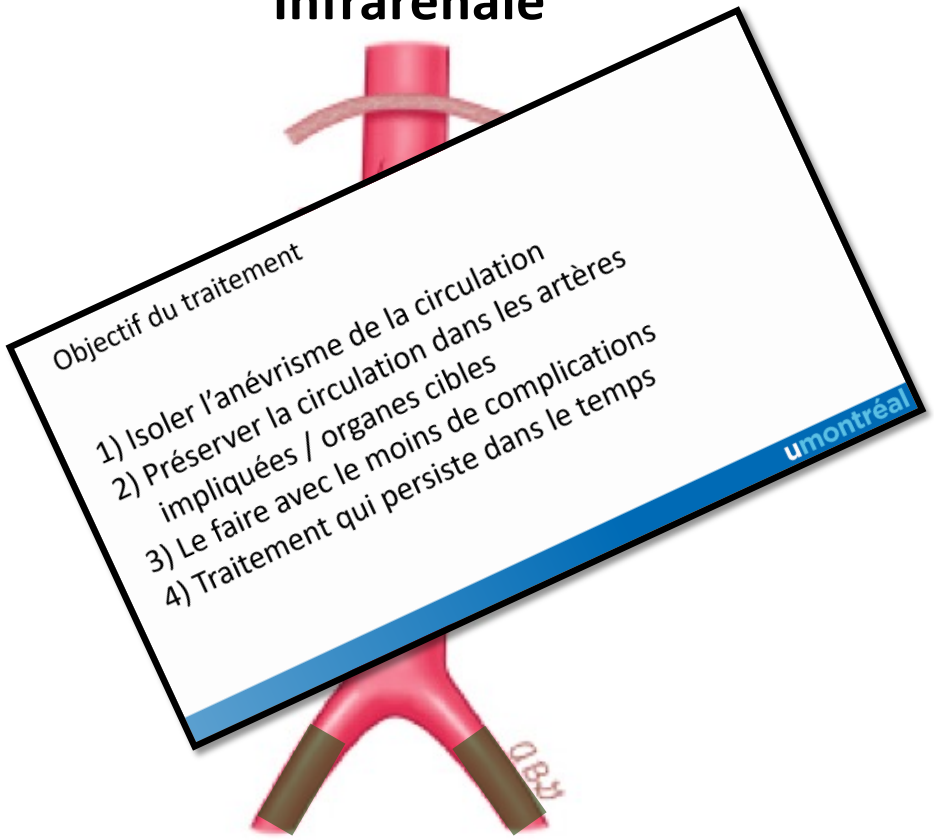


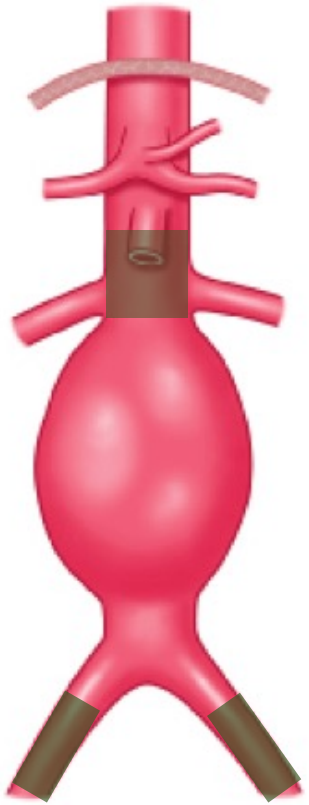
AAA complexes

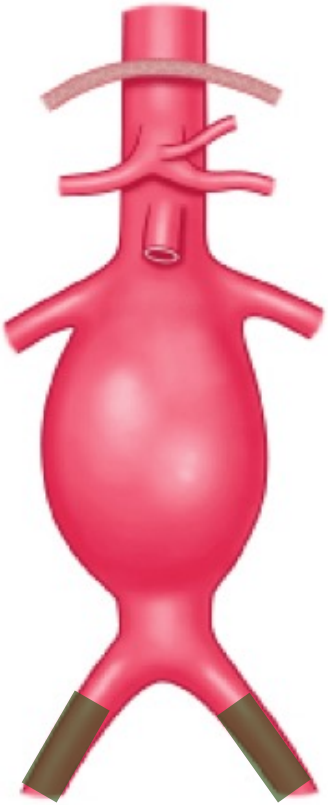
Infrarénale

Juxtarénal

Pararénal







AAA complexes

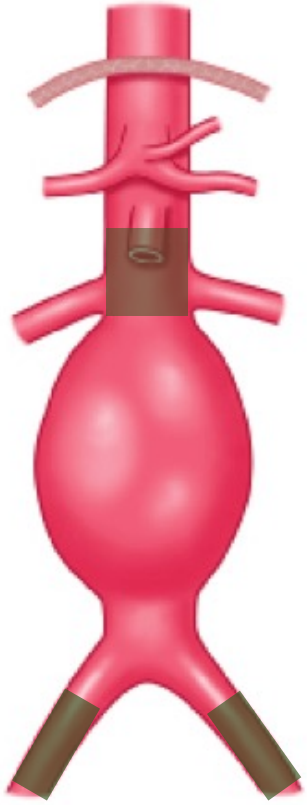
Infrarénale

Objectif du traitement

1) Isoler l'anévrisme de la circulation
2) Préserver la circulation dans les artères impliquées / organes cibles
3) Le faire avec le moins de complications
4) Traitement qui persiste dans le temps

umontréal

Juxtarénal



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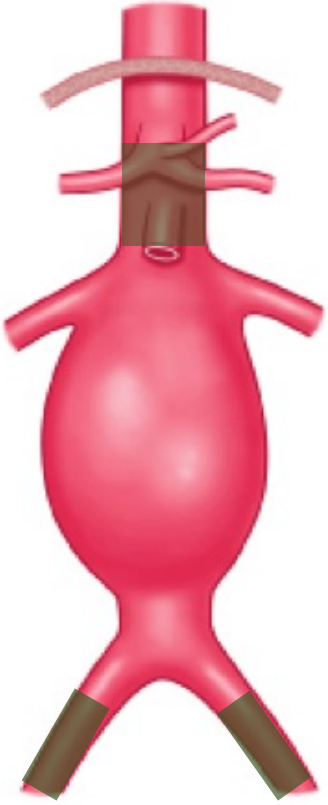
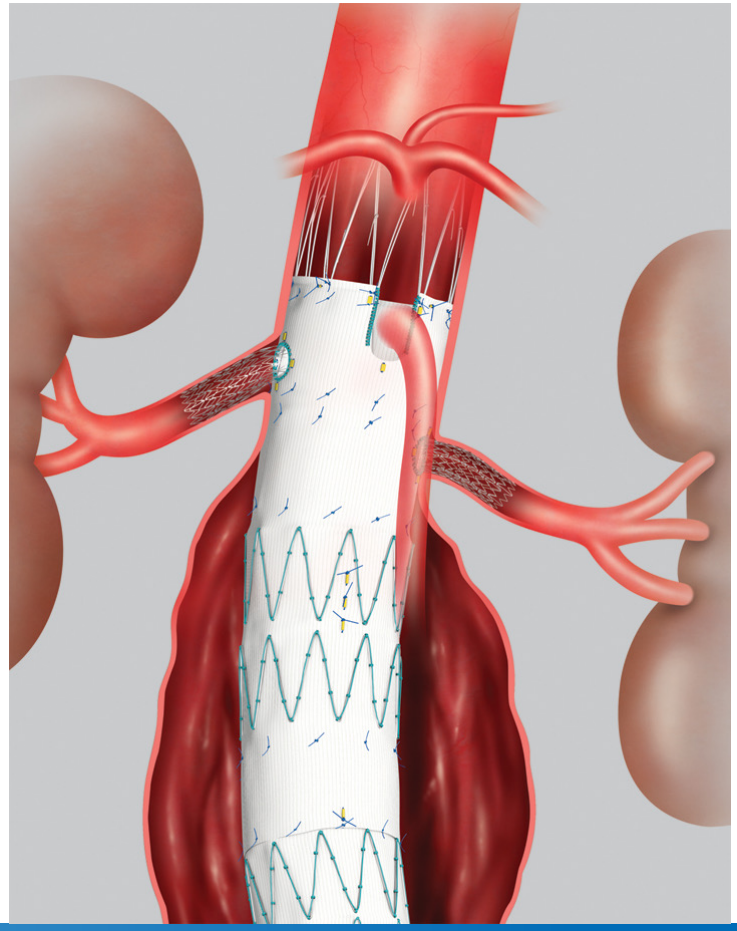


AAA complexes - FEVAR



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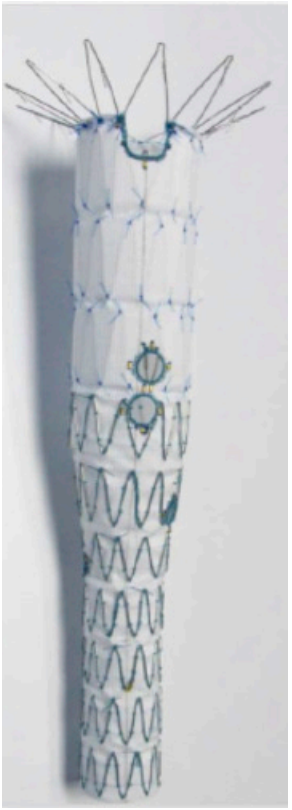
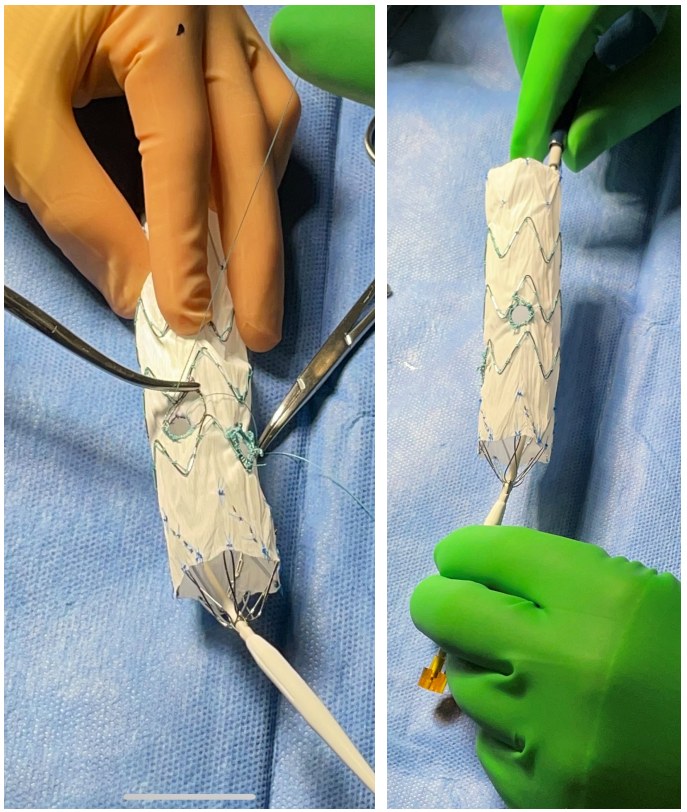


Custom-made

AAA complexes - FEVAR

Custom-made



Modifié sur table

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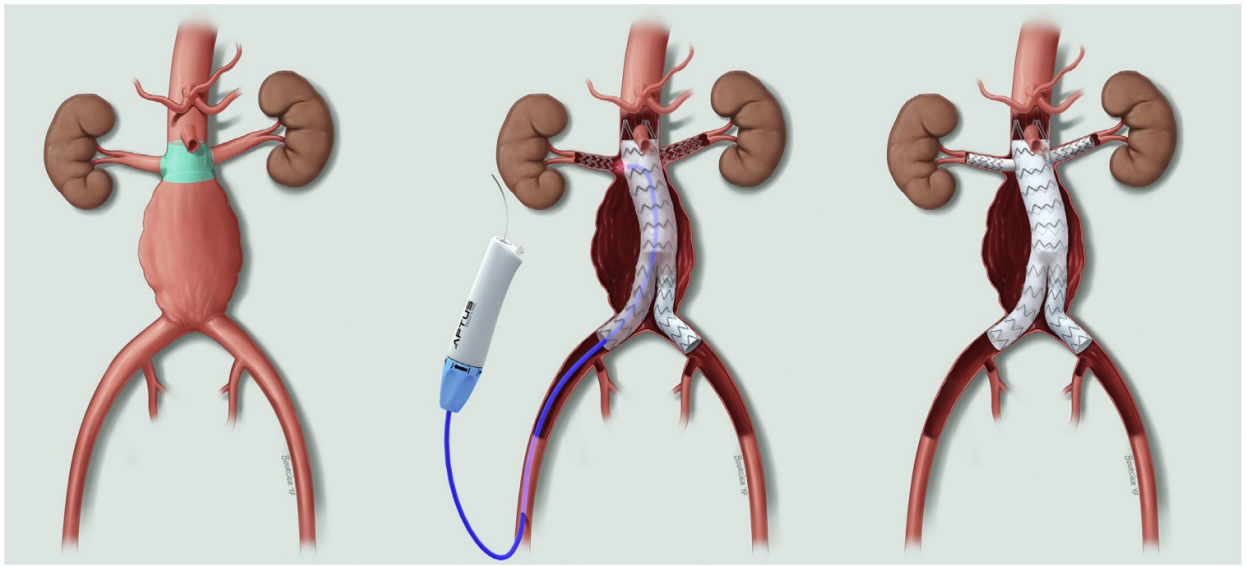

Figure 1. Procedure for pararenal aortic aneurysm.

Fenestrations in-situ

Cas #3 Pré-op

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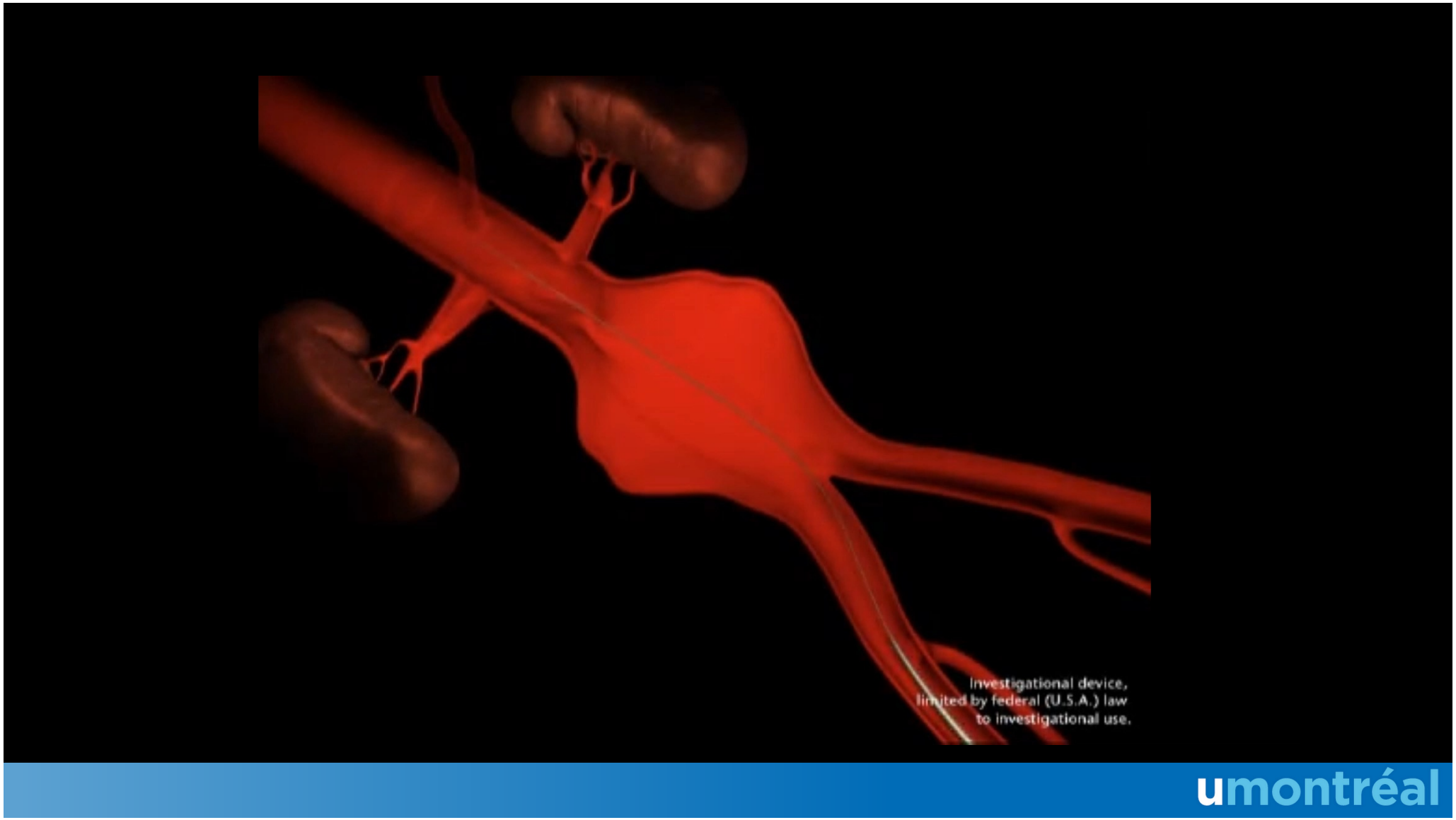
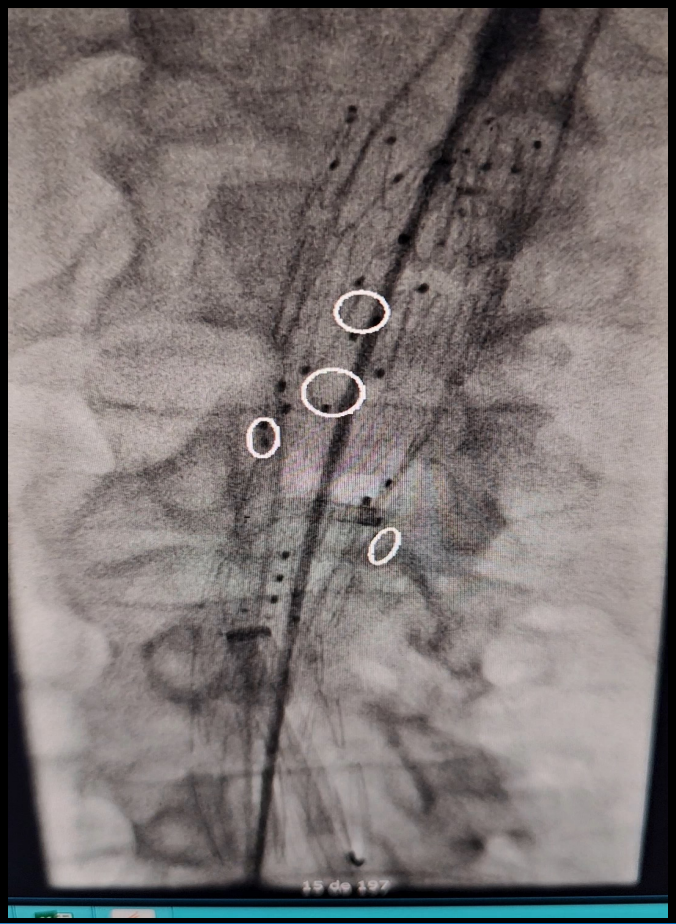

investigational device,
limited by federal (U.S.A.) law
to investigational use.


15 de 197

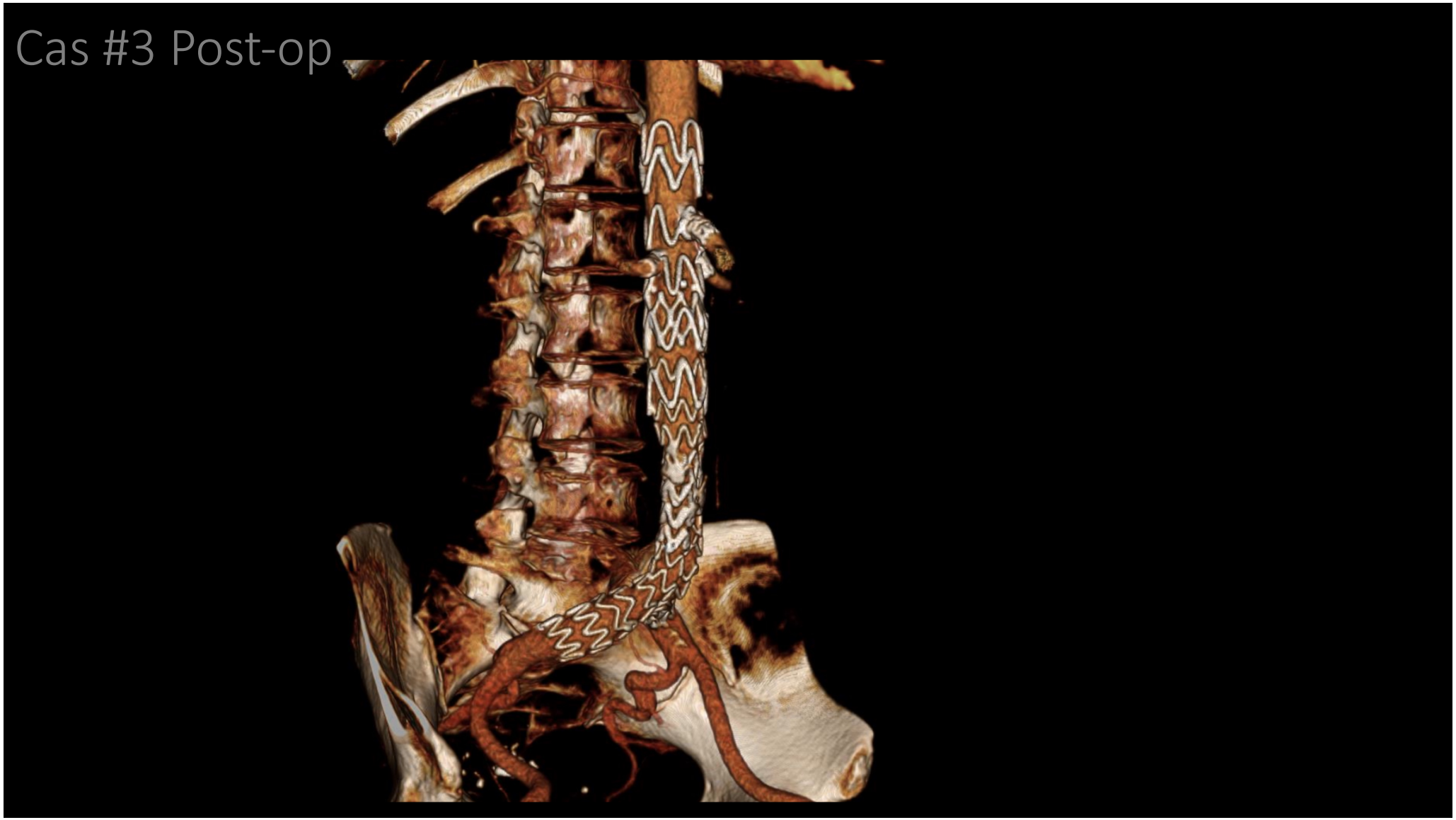
Cas #3 Post-op

Cas #3 Post-op

Cas #3 Post-op

Cas #3 Post-op

Cas #3 Post-op



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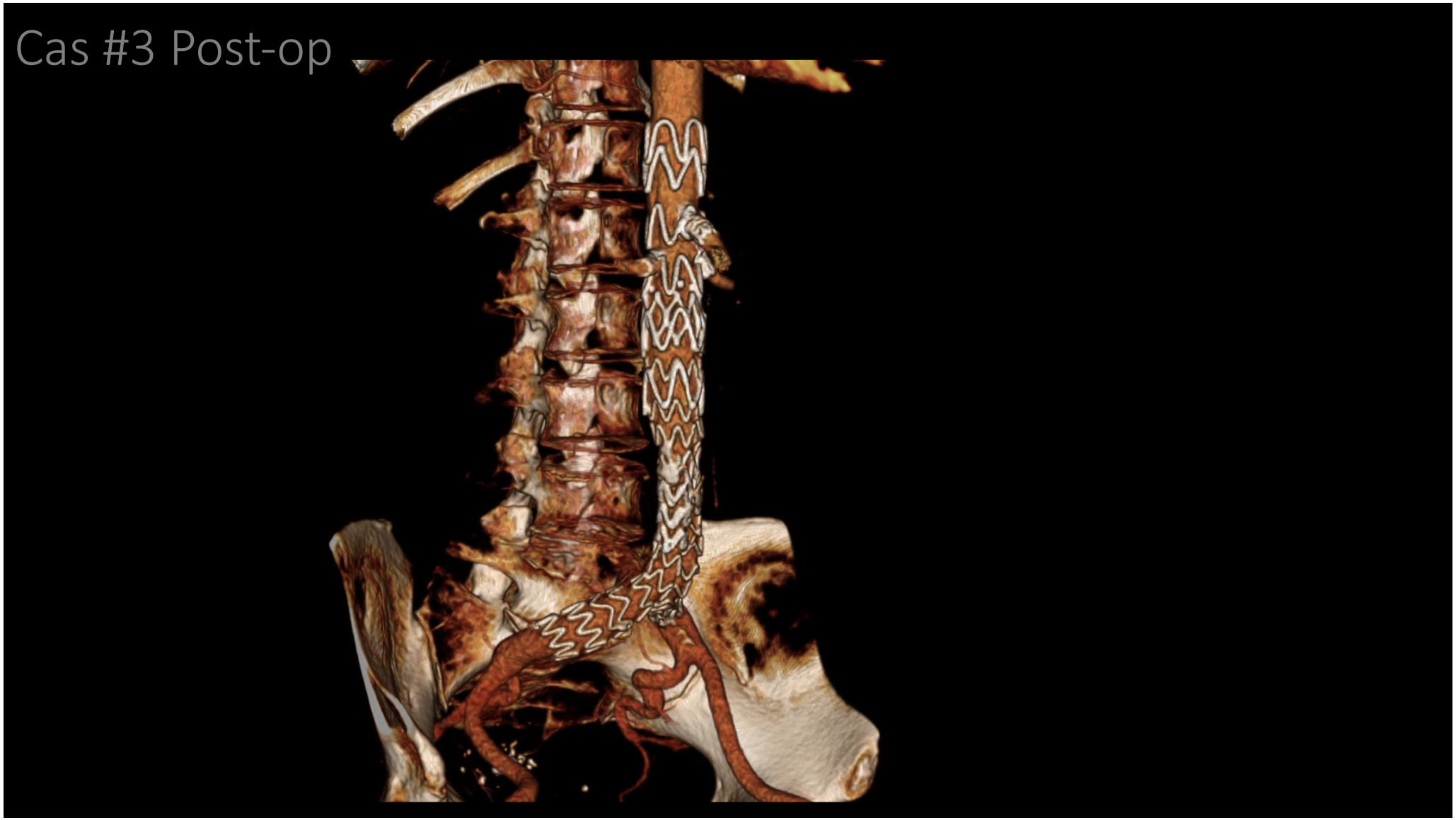

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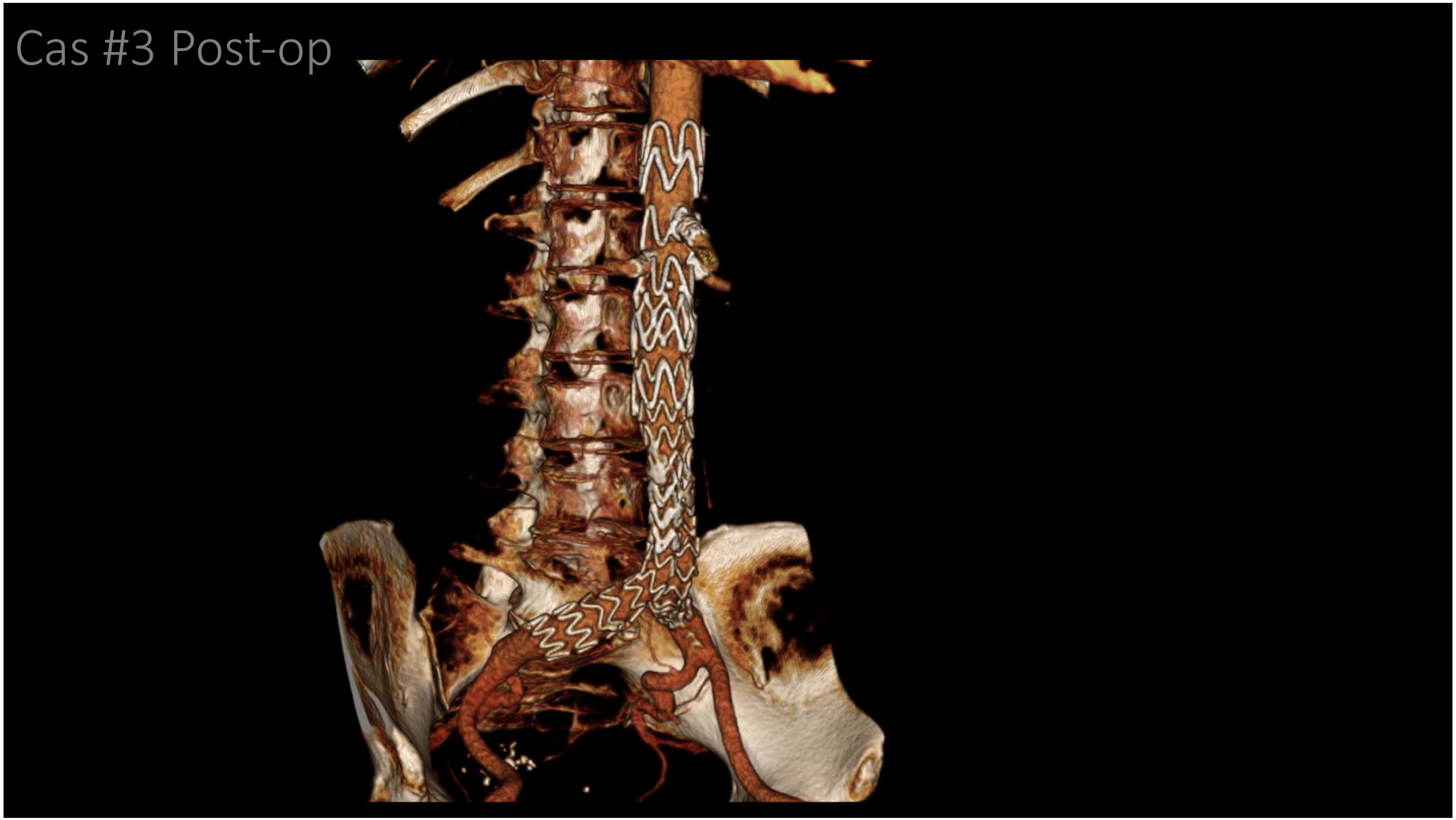

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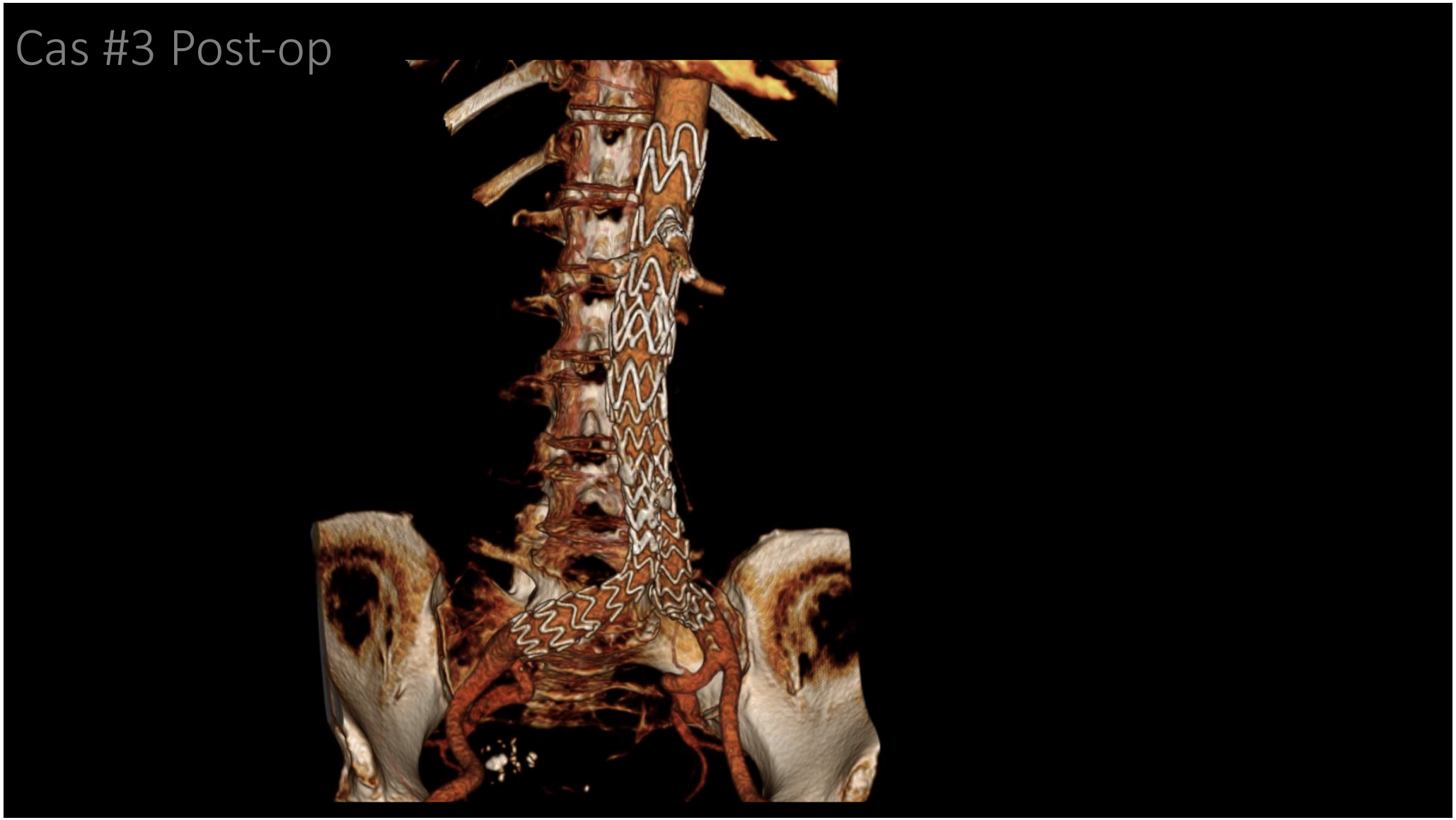

Cas #3 Post-op

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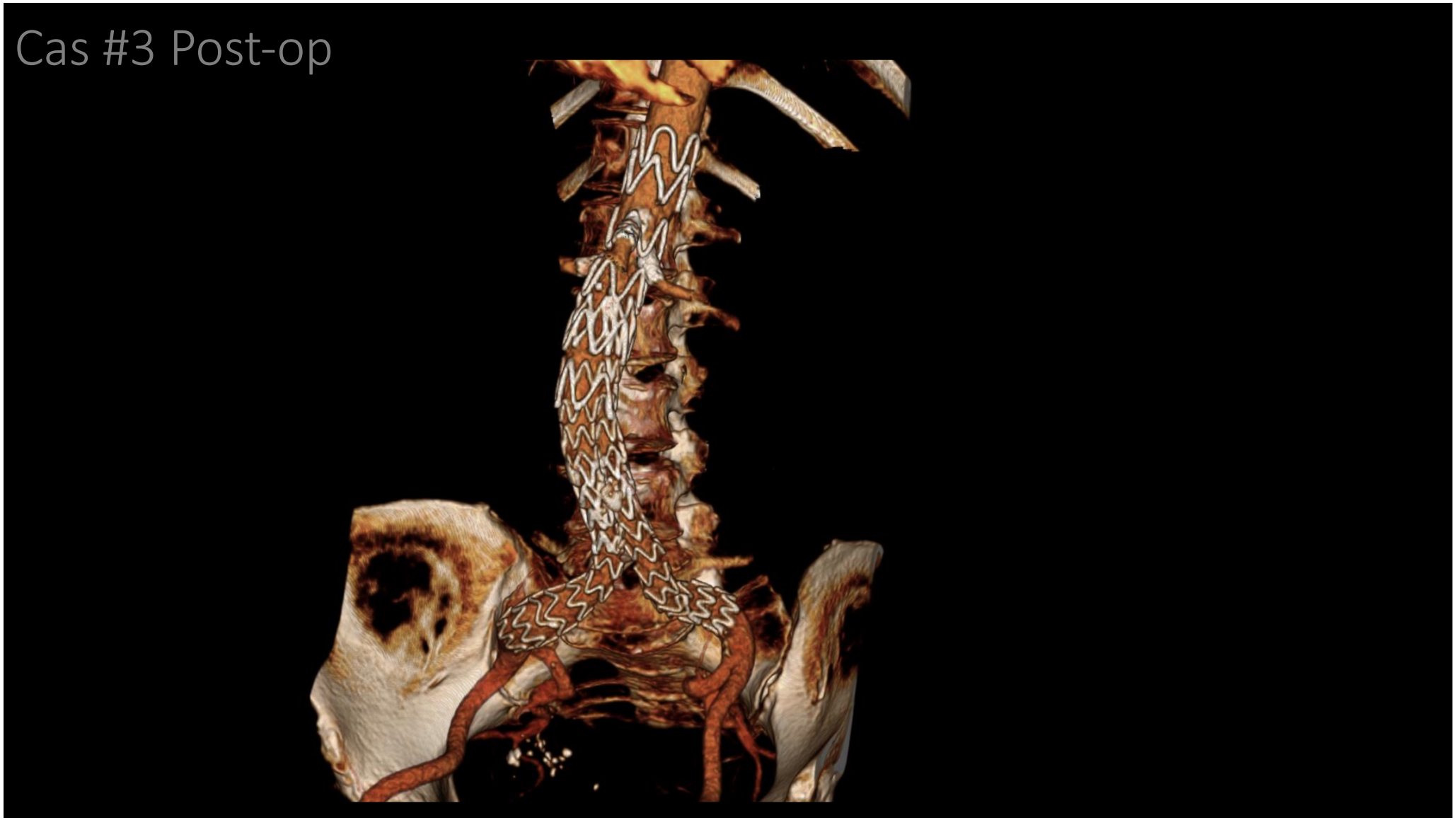

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Cas #3 Post-op

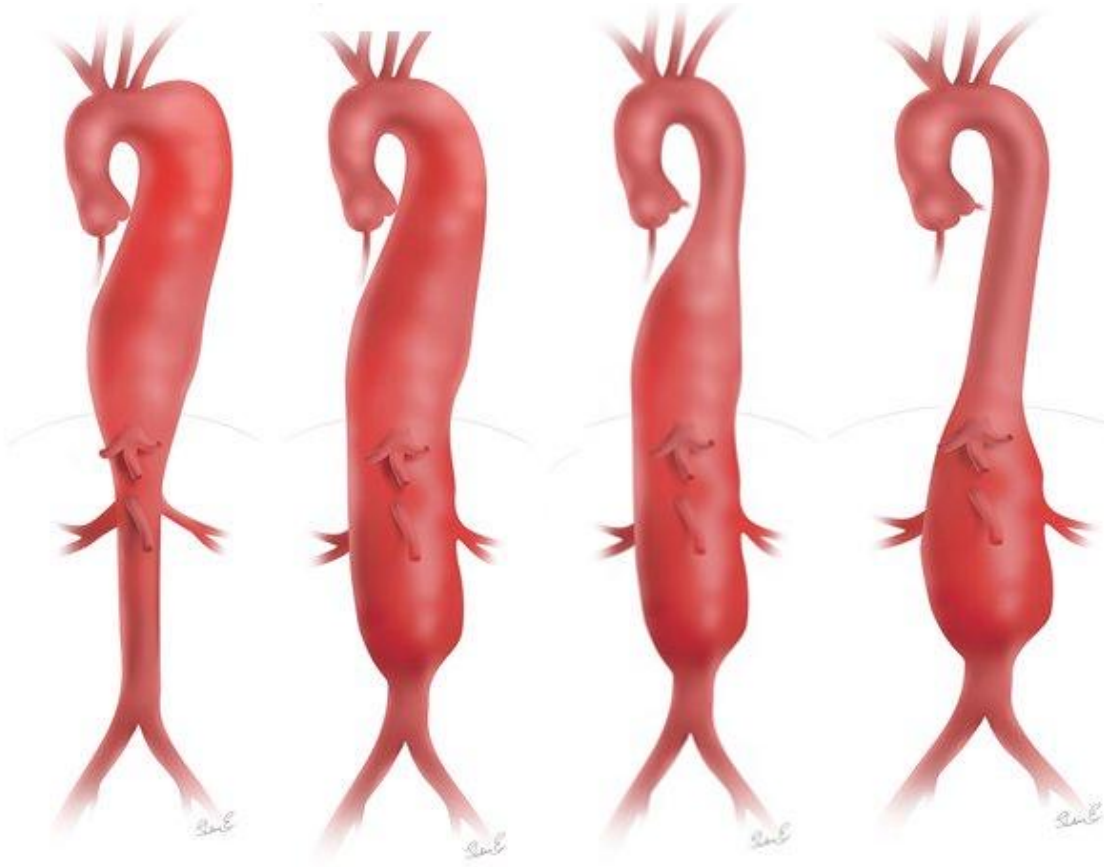
OPTIONS THÉRAPEUTIQUES

AORTE THORACO-ABDO

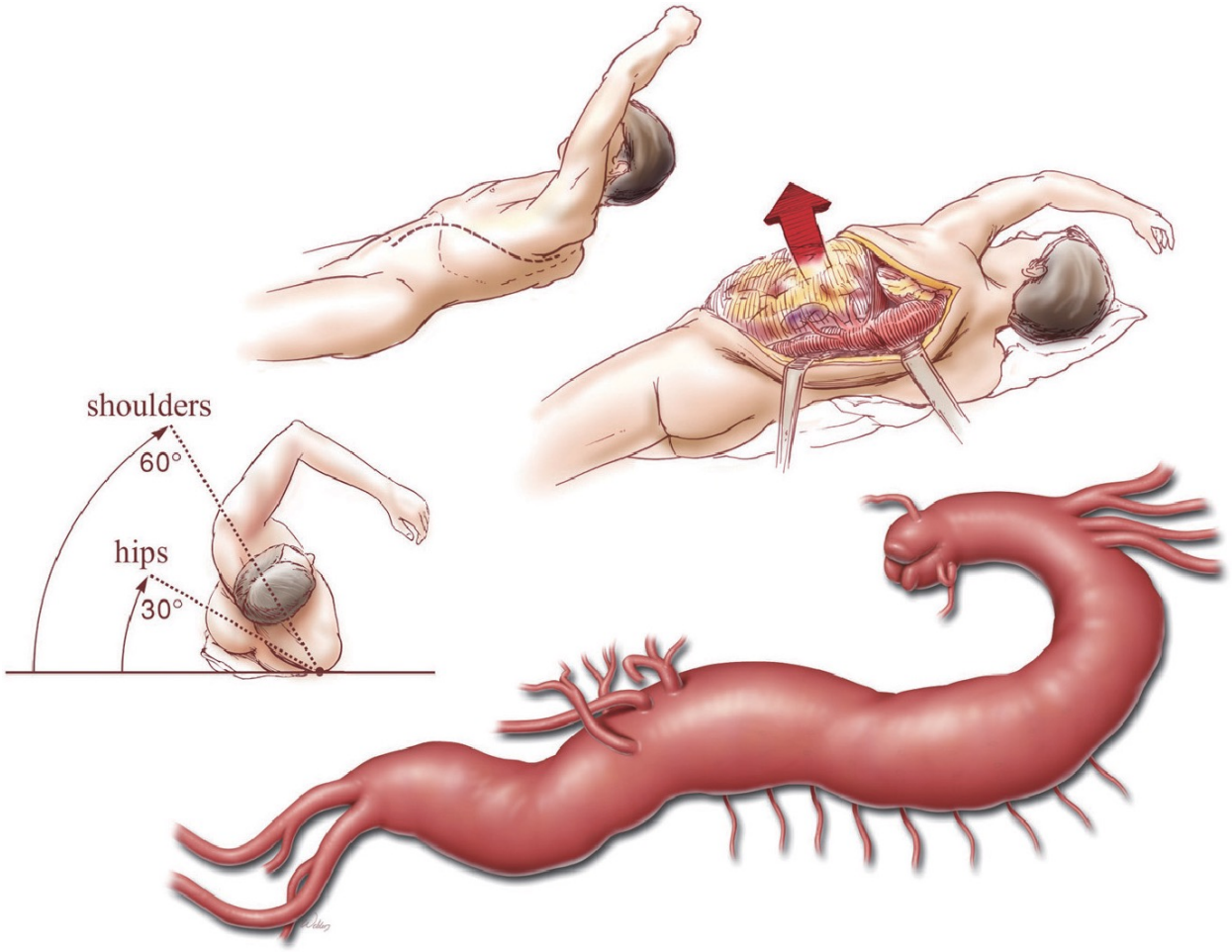
CHUM
CENTRE AORTIQUE

umontréal

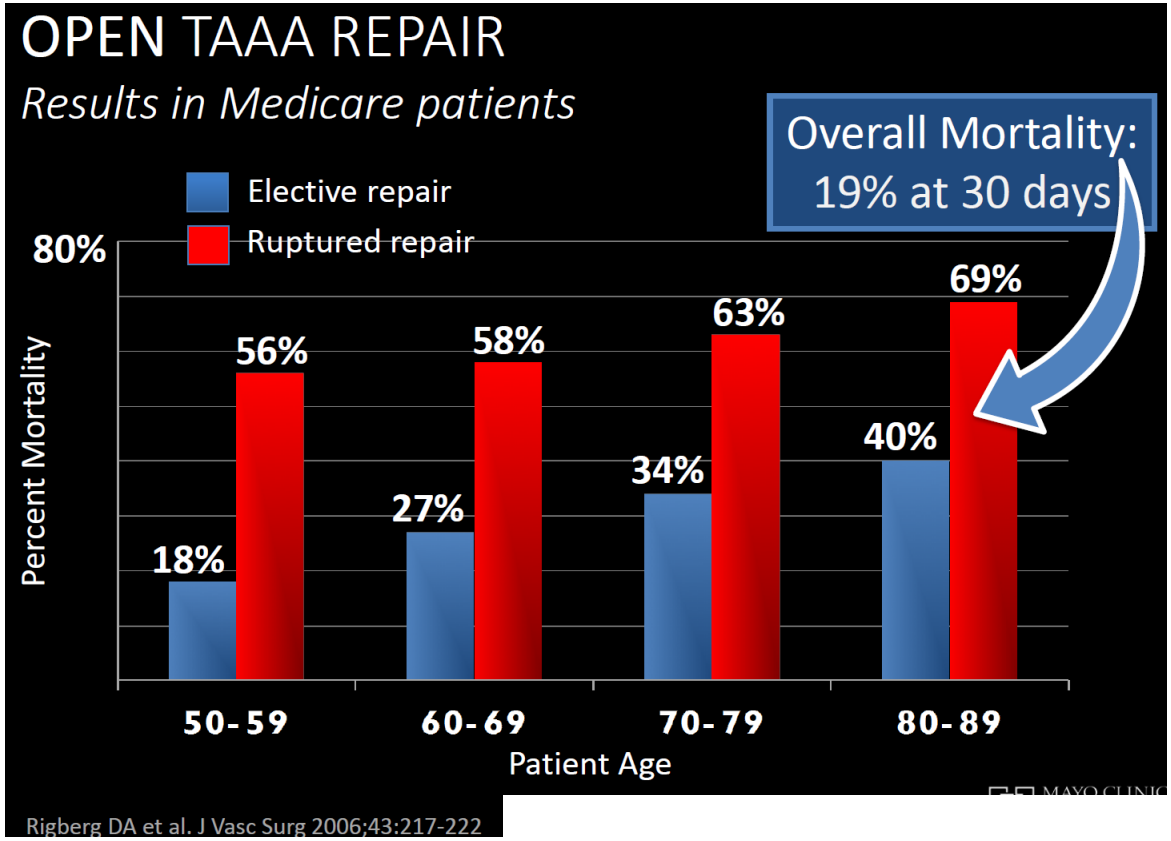
AATA



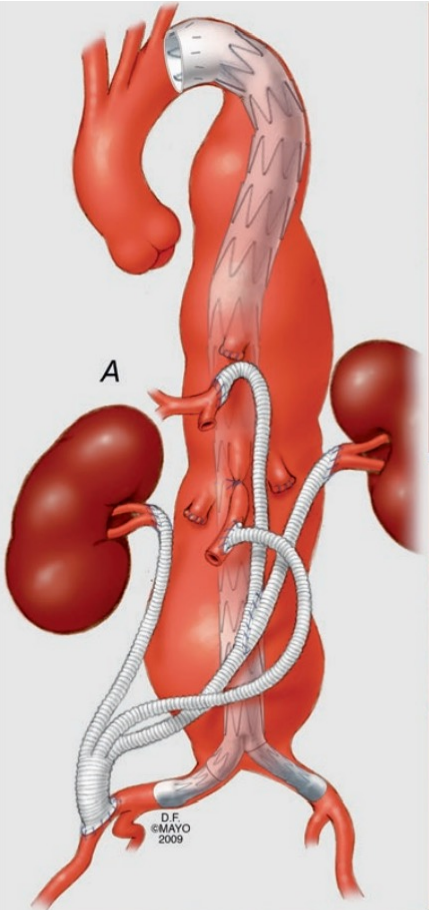
AATA - Ouvert



Chirurgie ouverte - AATA



Anévrisme aorte thoraco-abdominale – Hybride



Mortalité 30j: 10-15%

AATA - Endovasculaire

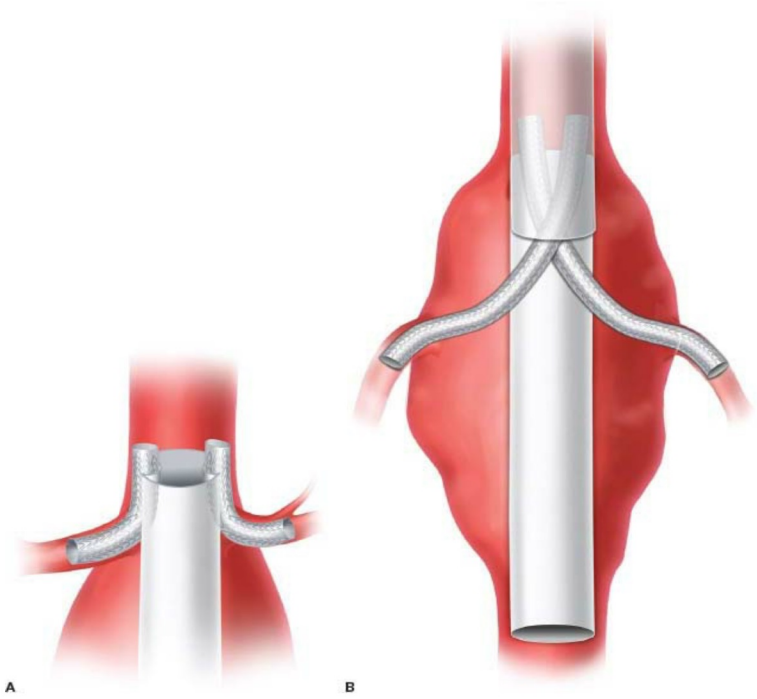


Figure 34.3 A: Chimney graft. **B:** Sandwich graft configurations.

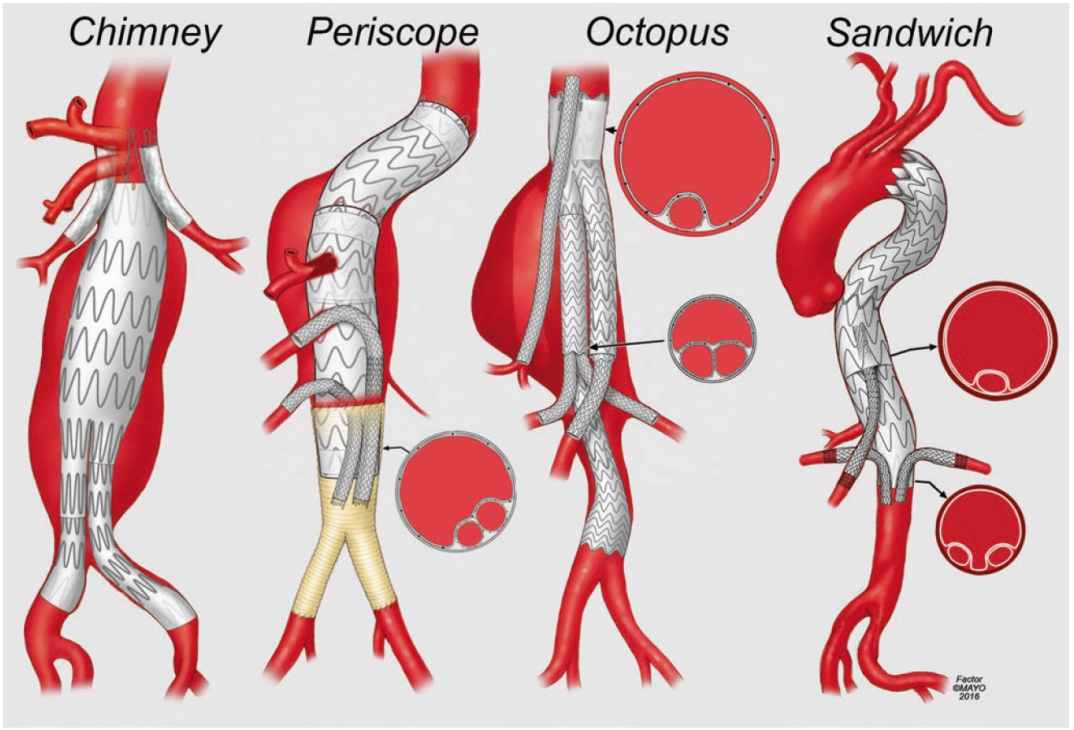
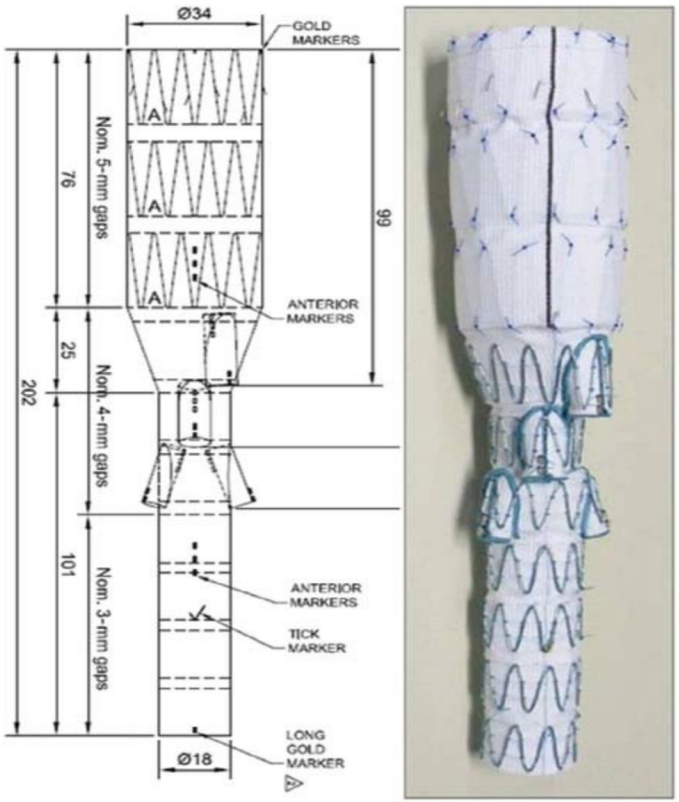
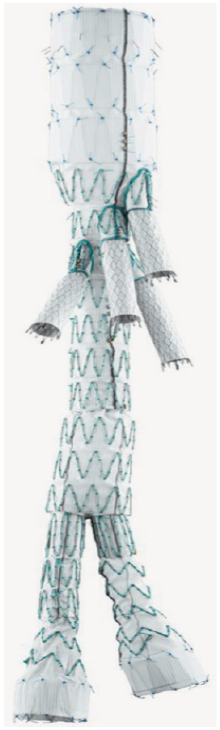


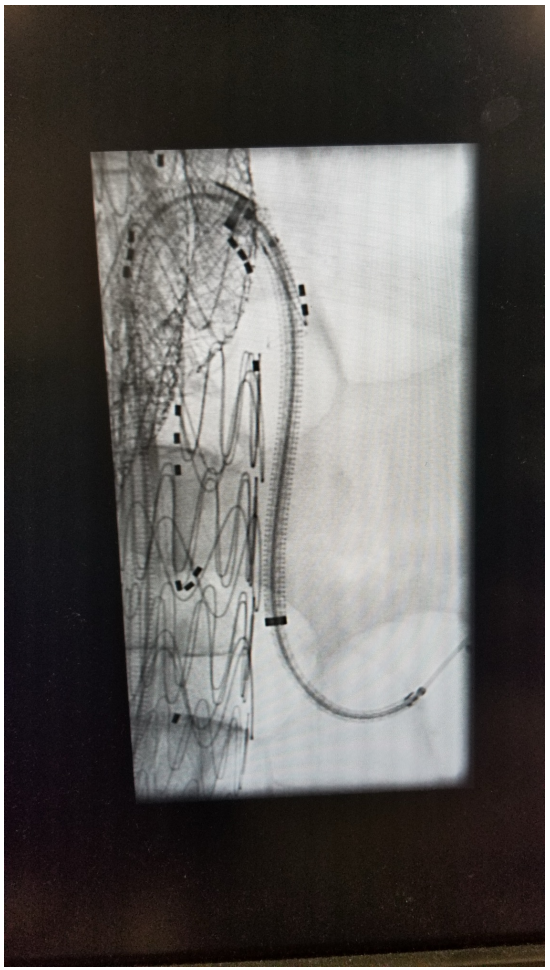
Fig. 5.2 Parallel stent-graft techniques. By permission of Mayo Foundation for Medical Education and Research. All rights reserved

BEVAR





T-BRANCH



Dissection aortique chronique – Avantages endovasculaires

-Evite un geste morbide (thoracotomie, organes (cœur, poumons, reins)

		Années	**Patients (n)**	**Mortalité 30j**	**SCI**	**SCI permanent**
AATA OUVERT	Crawford	1960-1991	1,509	10%	16%	Non précisé
	Safi	1991-2014	1,896	15.9%	9.7%	7.1%
	Coselli	1986-2014	3,309	7.5%	9.6%	5.3%
	Medicare	1991-2002	1,010	19%	Non étudié	
AATA ENDOVASCULAIRE	Verhoeven	2010-2017	71	5.6%	4.2%	2.8%
	Aortic Consortium	2014-2017	50	2%	2%	2%
	VQI	2014-2021	123	7.3%	7.3%	3.3%

Svensson LG et al. J Vasc Surg. 1993 Feb;17(2):357-68.
Estrera AL et al. Ann Surg. 2015 Oct;262(4):660-8.
Coselli JS et al. J Thorac Cardiovasc Surg. 2016 May;151(5):1323-37.
Rigberth DA et al. J Vasc Surg. 2006 Feb;43(2):217-22.
Kumlien M et al. J Vasc Surg 2021;73:1573-82.
Oikonomou K et al. Eur J Vasc Endovasc Surg (2019) 57, 102e109
JVascSurg2020;72:822-34
O'Donnell TFX et al. Eur J Vasc Endovasc Surg. 2023 Apr 20:S1078-5884(23)00304-0.

Dissection aortique chronique – Avantages endovasculaires

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	Medicare	1991-2002	1,010	19%	Non étudié	
AATA ENDOVASCULAIRE	Verhoeven	2010-2017	71	5.6%	4.2%	2.8%
	Aortic Consortium	2014-2017	50	2%	2%	2%
	VQI	2014-2021	123	7.3%	7.3%	3.3%

Svensson LG et al. J Vasc Surg. 1993 Feb;17(2):357-68.
Estrera AL et al. Ann Surg. 2015 Oct;262(4):660-8.
Coselli JS et al. J Thorac Cardiovasc Surg. 2016 May;151(5):1323-37.
Rigberth DA et al. J Vasc Surg. 2006 Feb;43(2):217-22.
Kumlien M et al. J Vasc Surg 2021;73:1573-82.
Oikonomou K et al. Eur J Vasc Endovasc Surg (2019) 57, 102e109
JVascSurg2020;72:822-34
O'Donnell TFX et al. Eur J Vasc Endovasc Surg. 2023 Apr 20:S1078-5884(23)00304-0.

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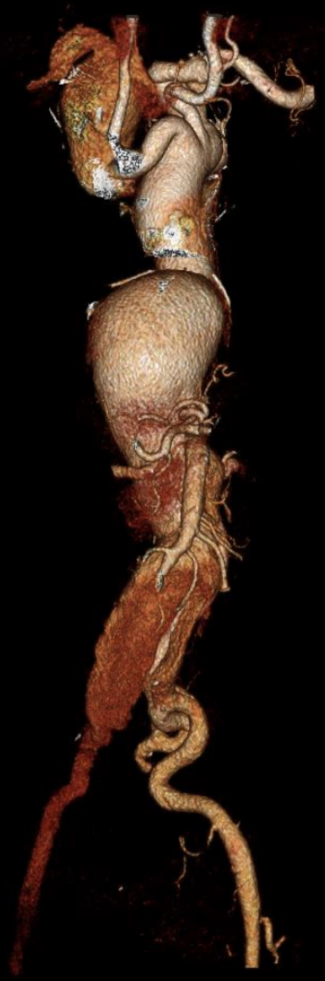
Cas #4 Pré-op

Cas #4 Pré-op

Cas #4 Pré-op



Cas #4 Pré-op

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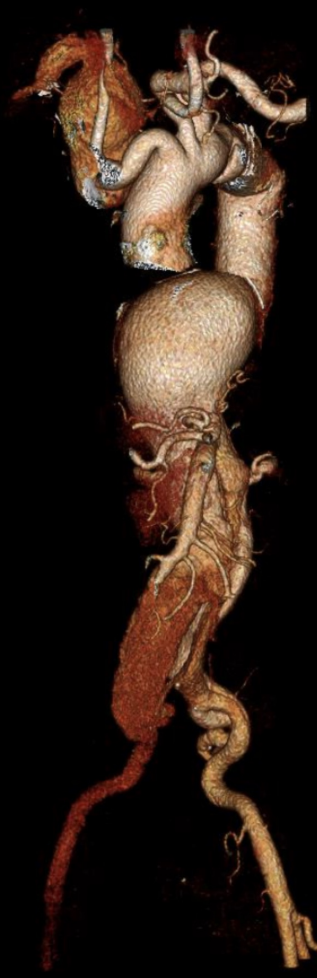

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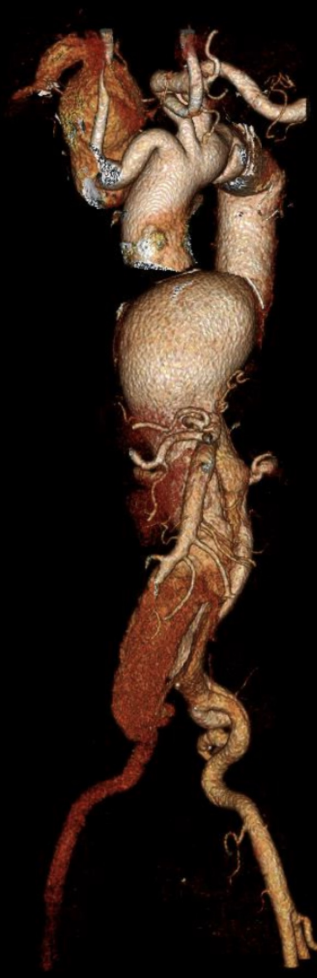

Cas #4 Pré-op

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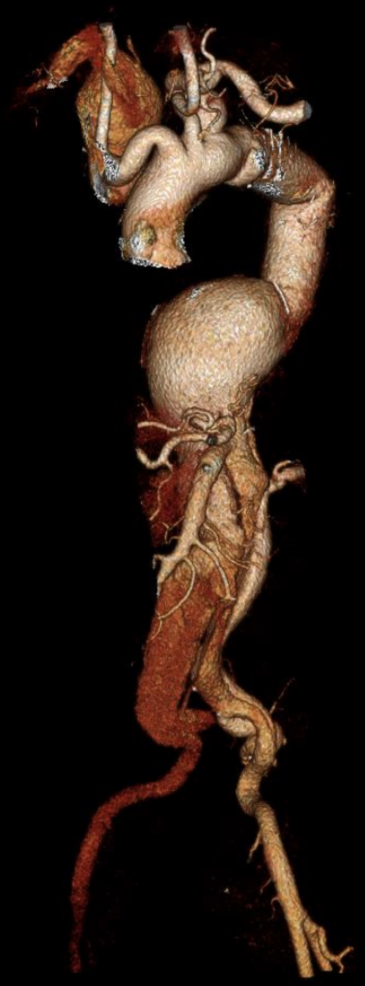

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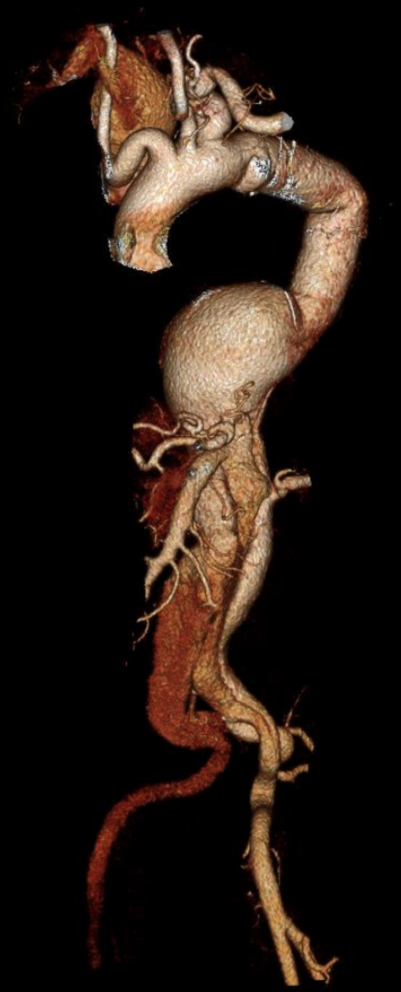

Cas #4 Pré-op

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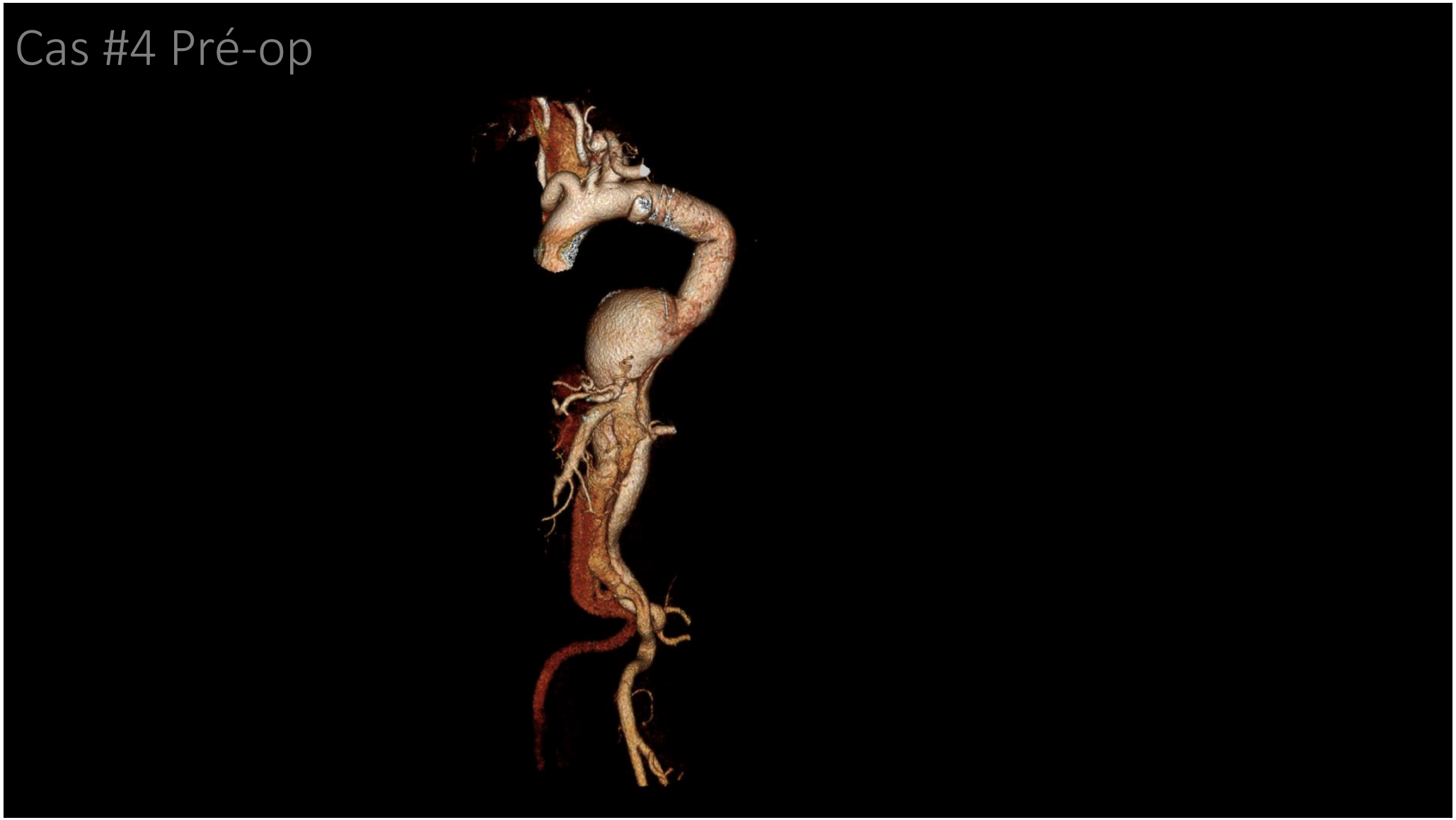

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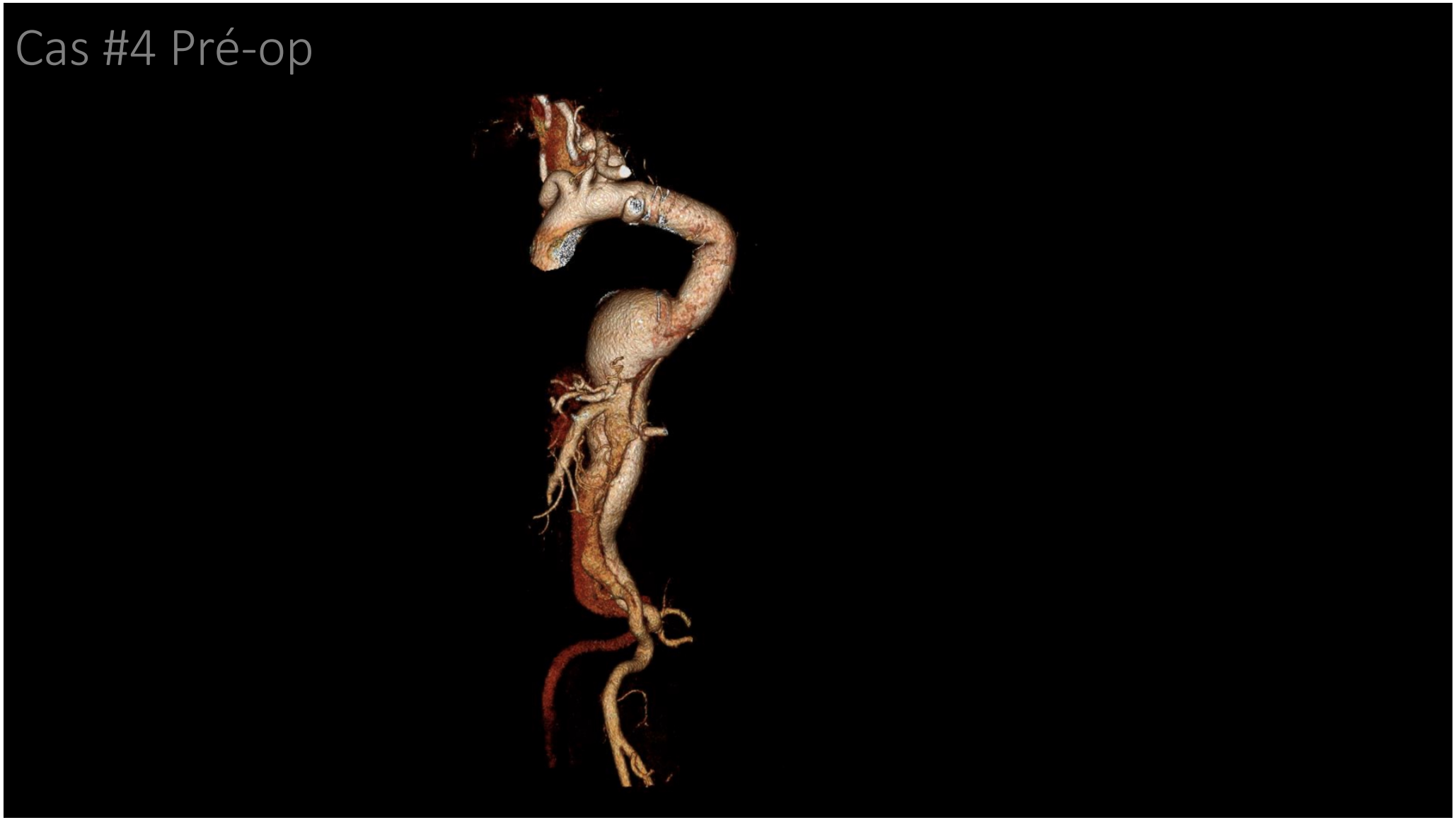
Cas #4 Pré-op



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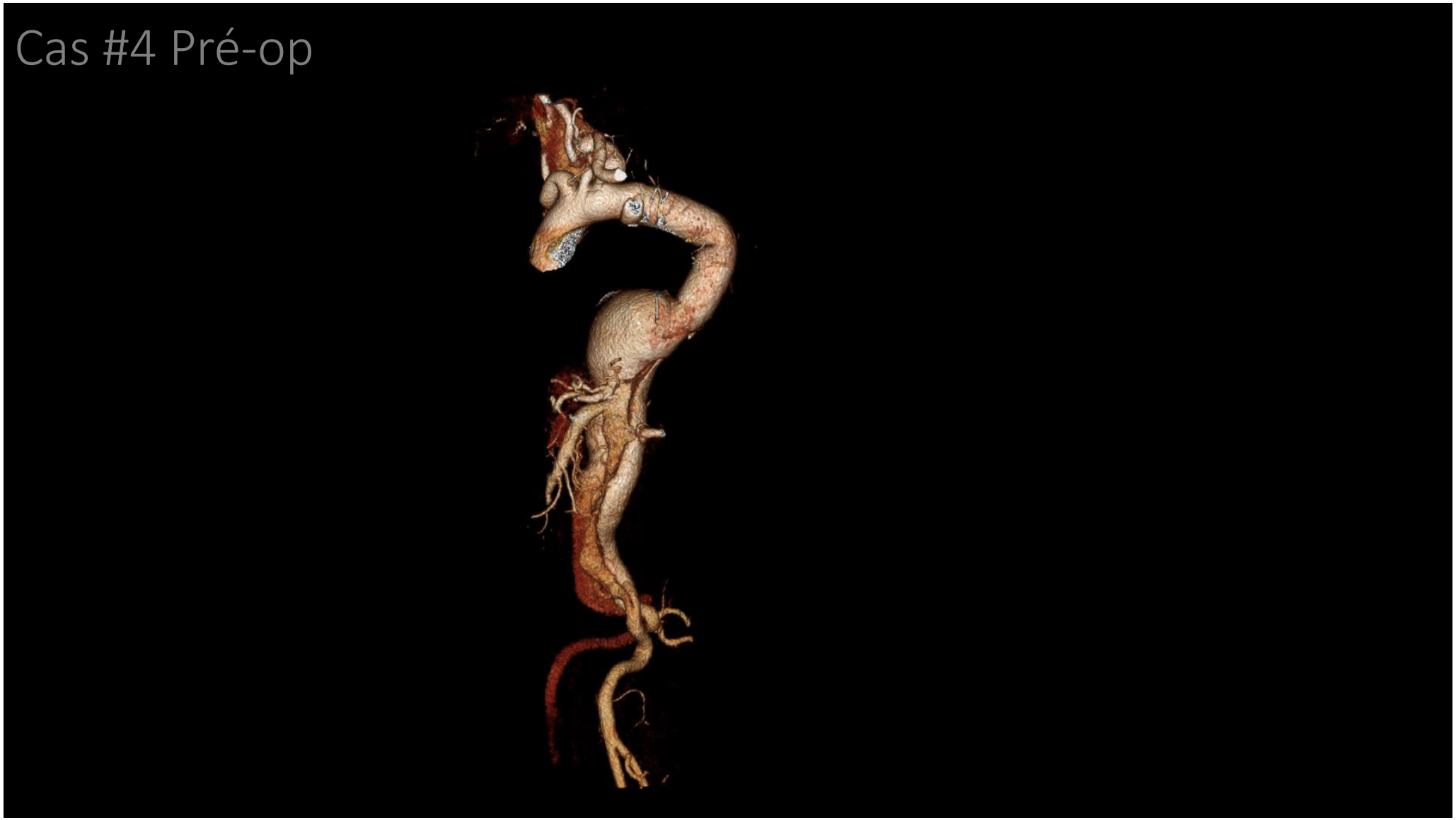

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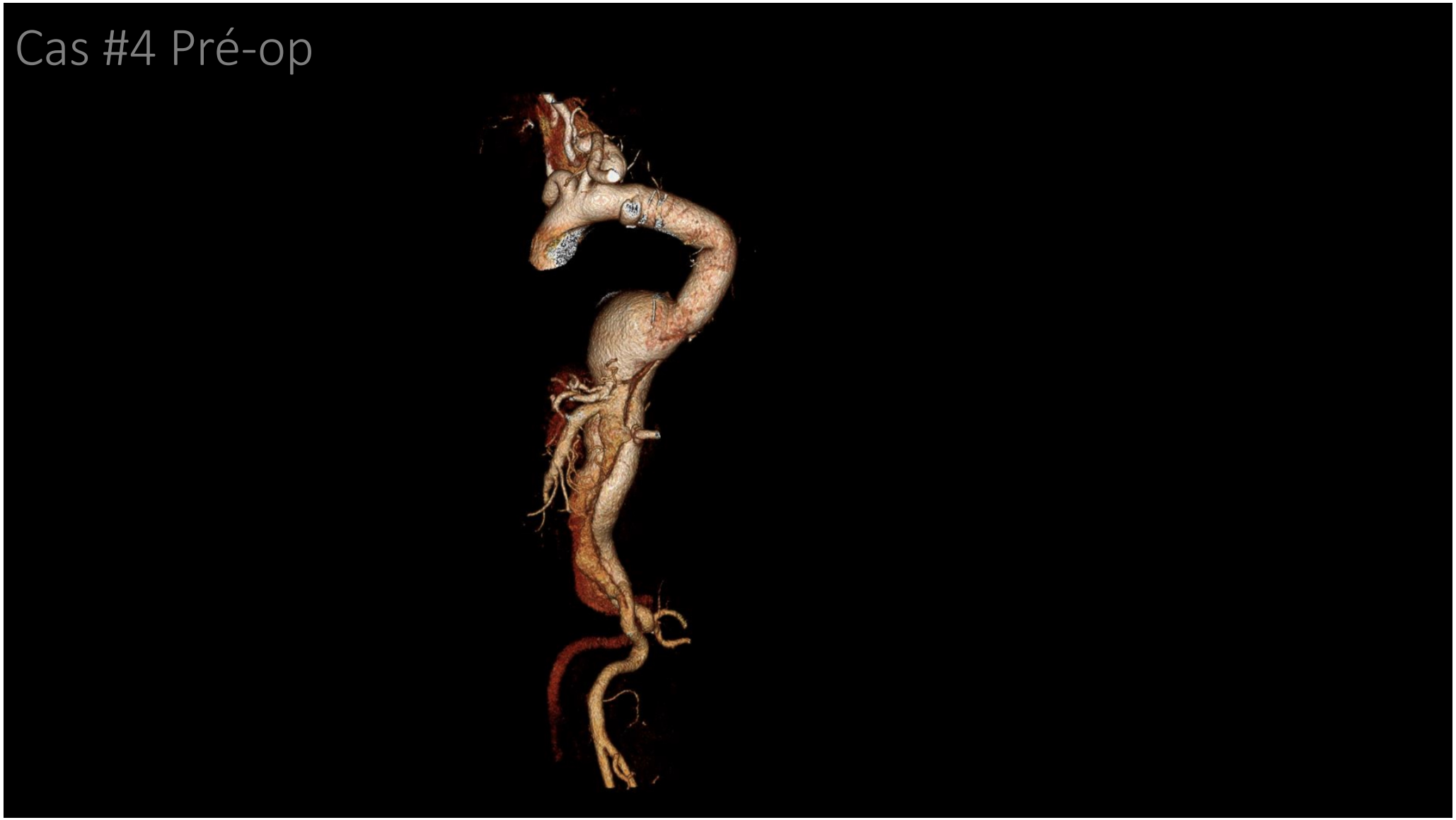

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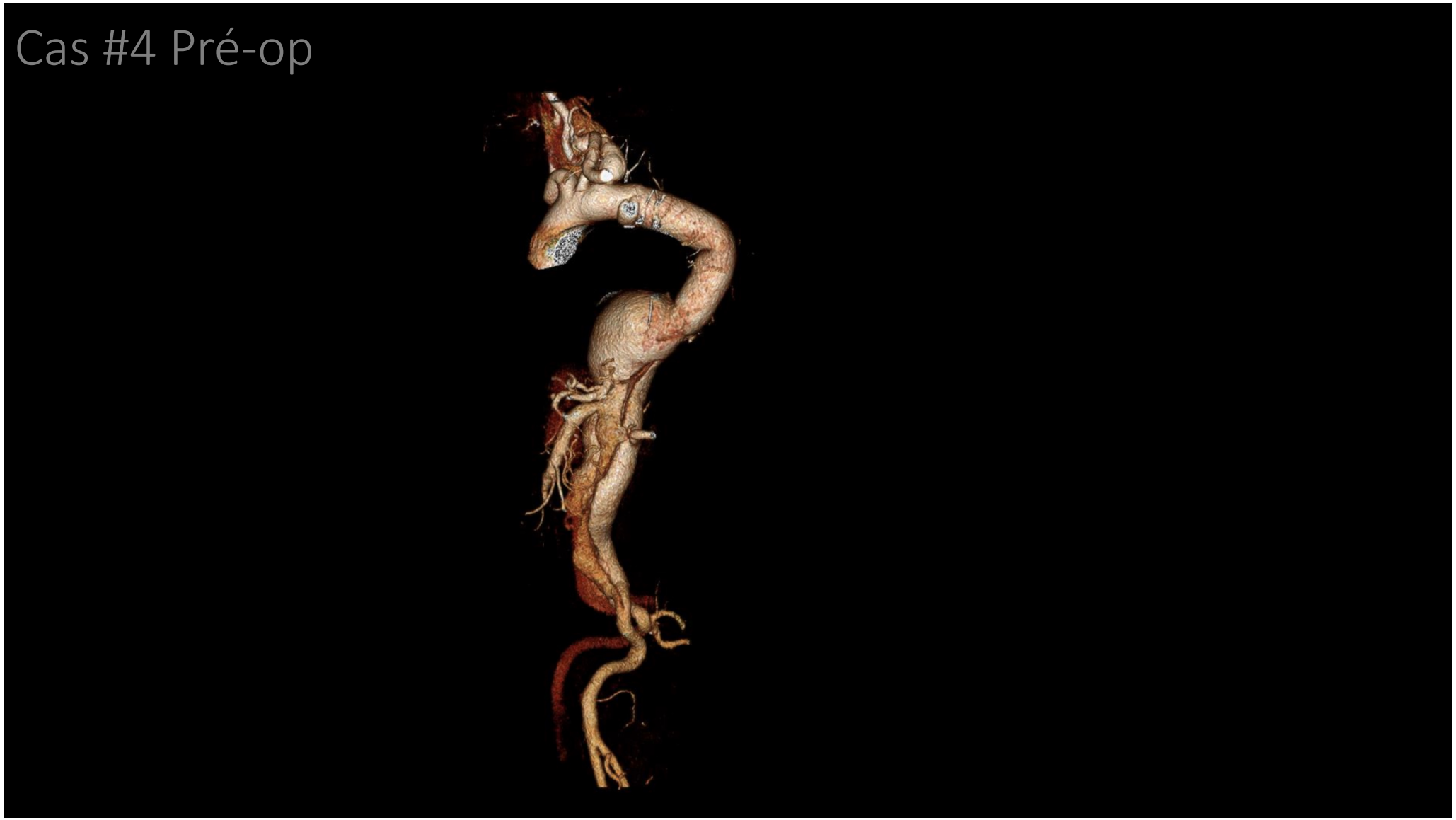

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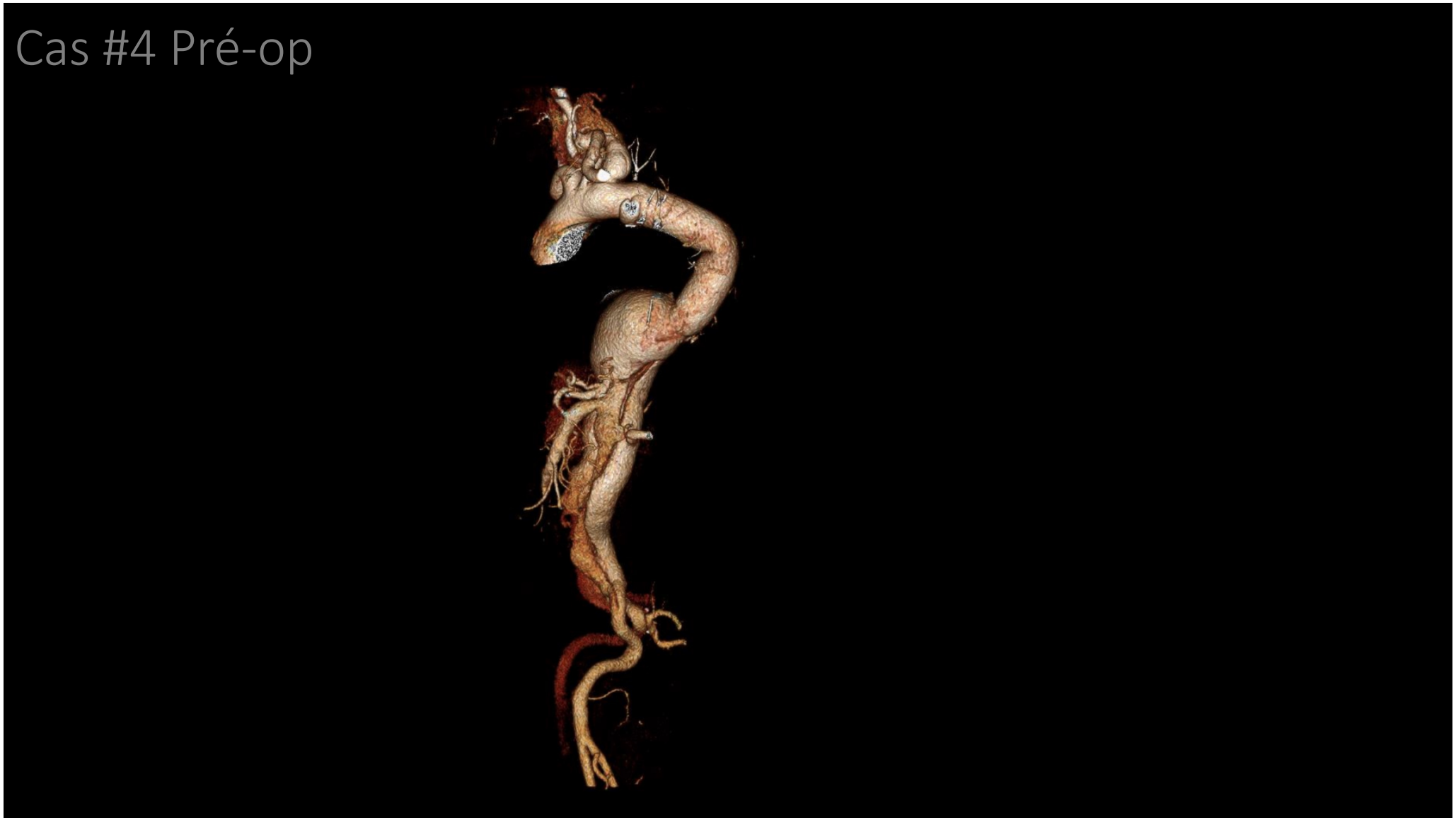

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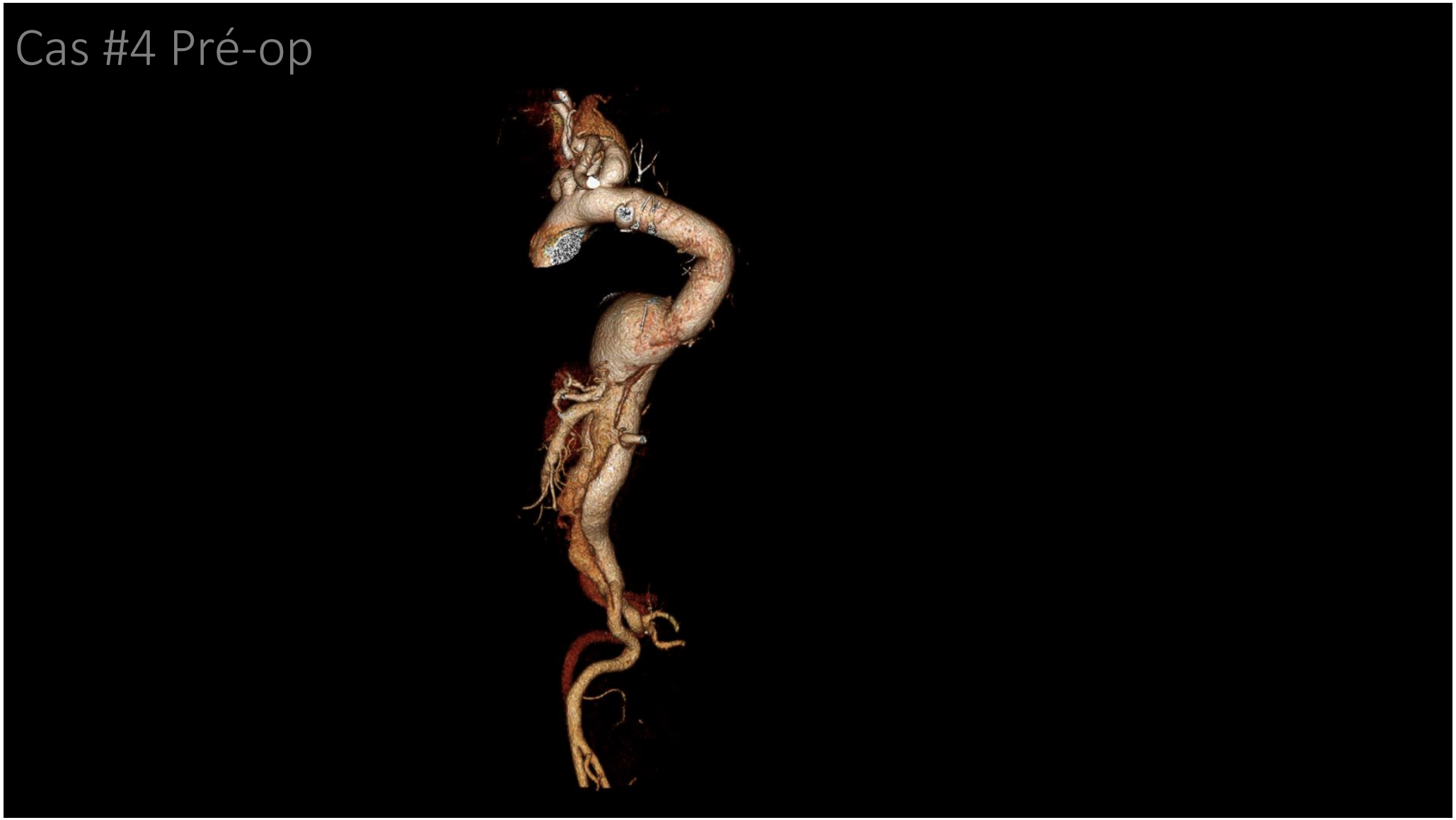

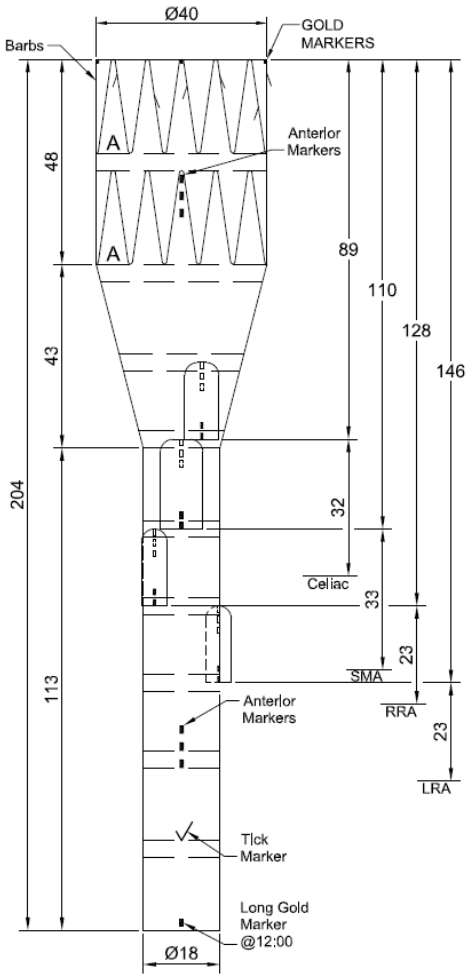

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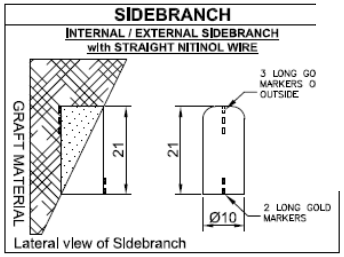
LENGTH: 18mm
DIST FROM PROX EDGE: 89mm
CLOCK: 1:00

INTERNAL/EXTERNAL SIDEBRANCH #2
DIAMETER: 10mm
LENGTH: 21mm
DIST FROM PROX EDGE: 110mm
CLOCK: 12:00

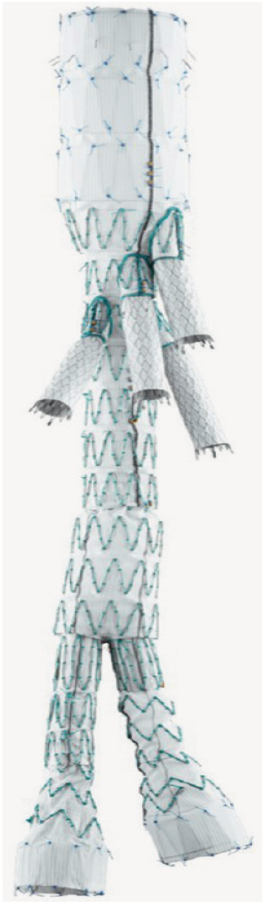
INTERNAL/EXTERNAL SIDEBRANCH #3
DIAMETER: 6mm
LENGTH: 18mm
DIST FROM PROX EDGE: 128mm
CLOCK: 10:30

INTERNAL/EXTERNAL SIDEBRANCH #4
DIAMETER: 6mm
LENGTH: 18mm
DIST FROM PROX EDGE: 146mm
CLOCK: 3:30

- SINGLE DIAMETER REDUCING TIES
- LOW PROFILE FABRIC



URGENT ORDER



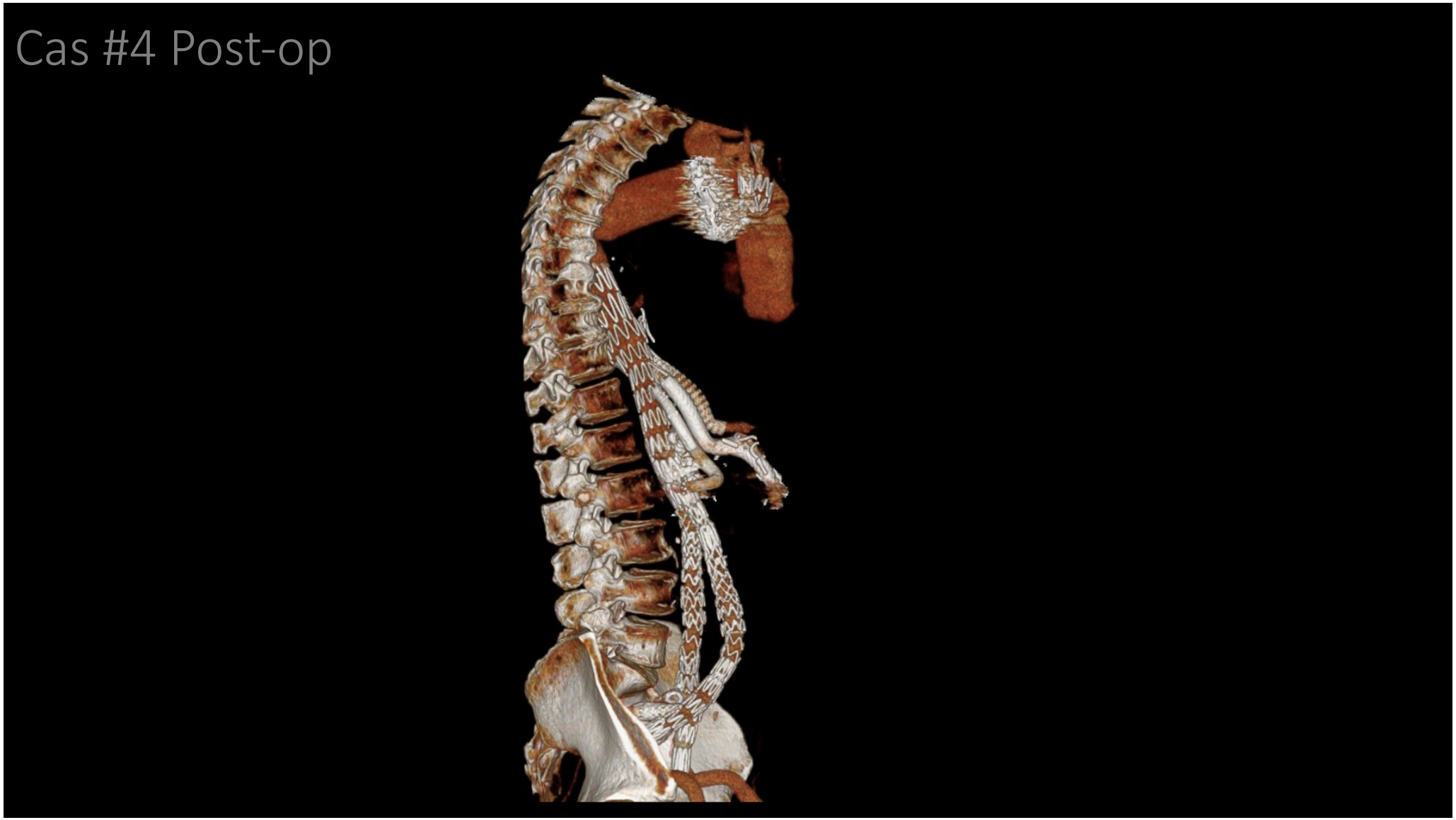
T-BRANCH

Cas #4 Post-op

Cas #4 Post-op

Cas #4 Post-op

Cas #4 Post-op



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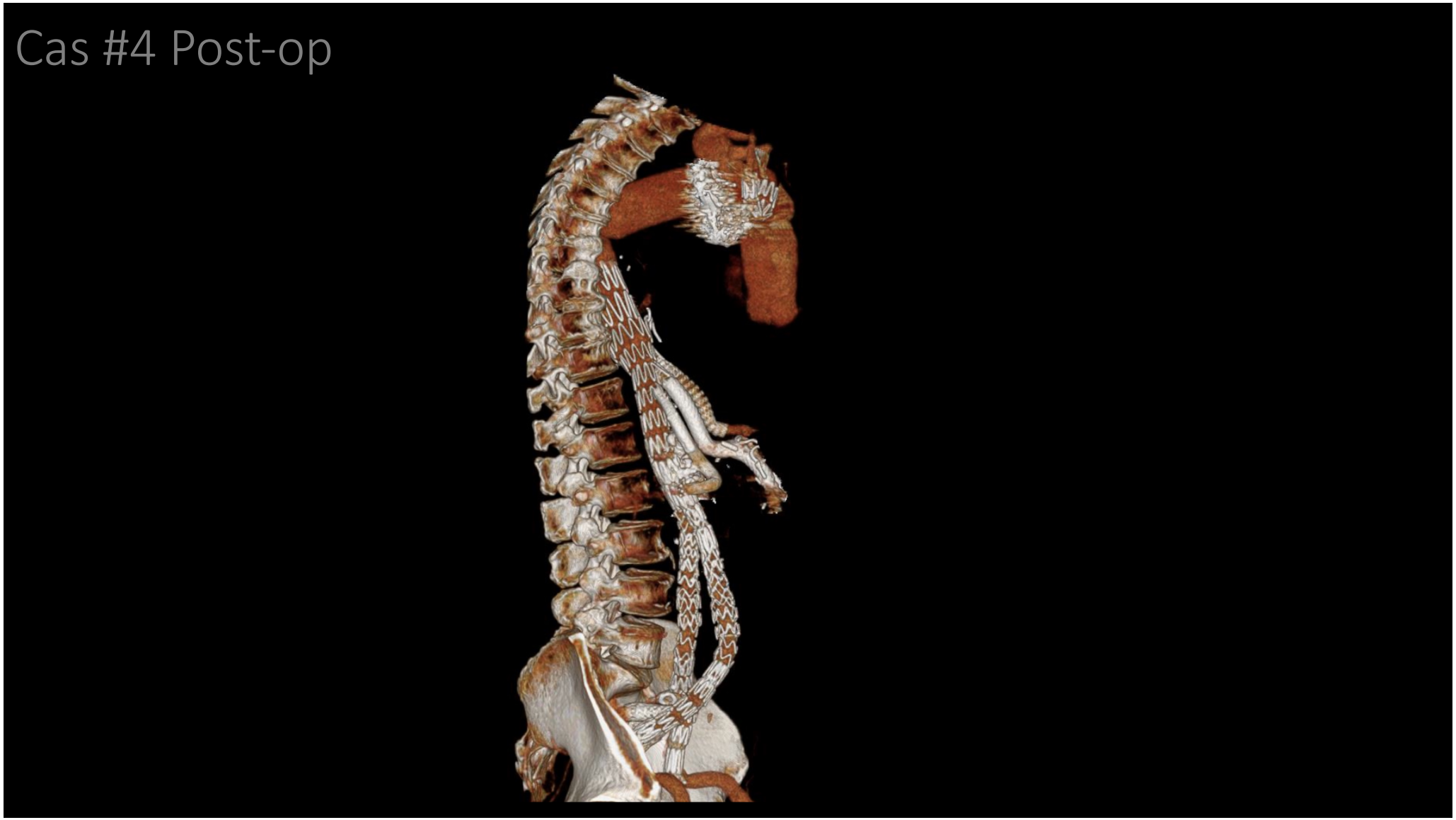

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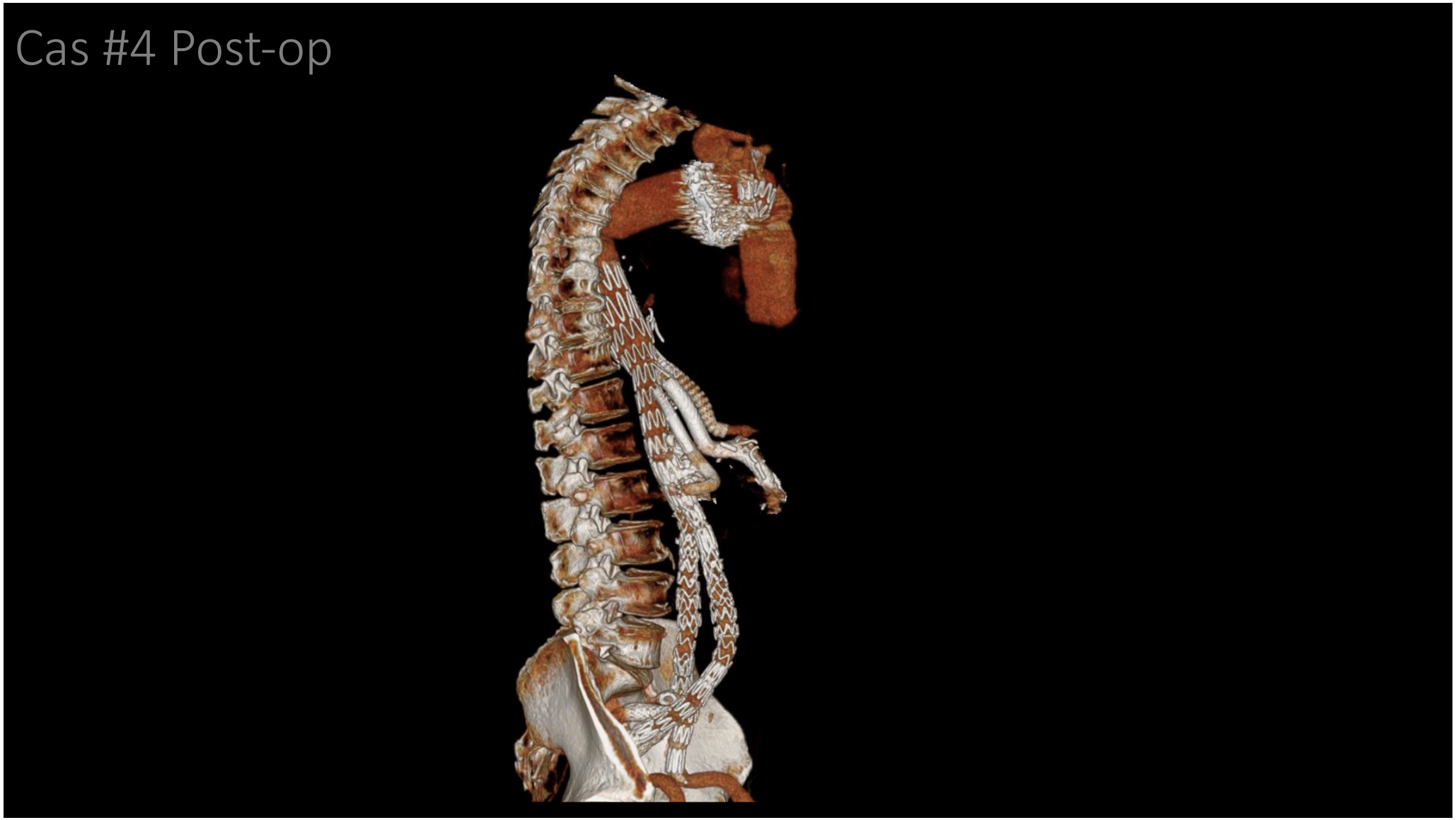

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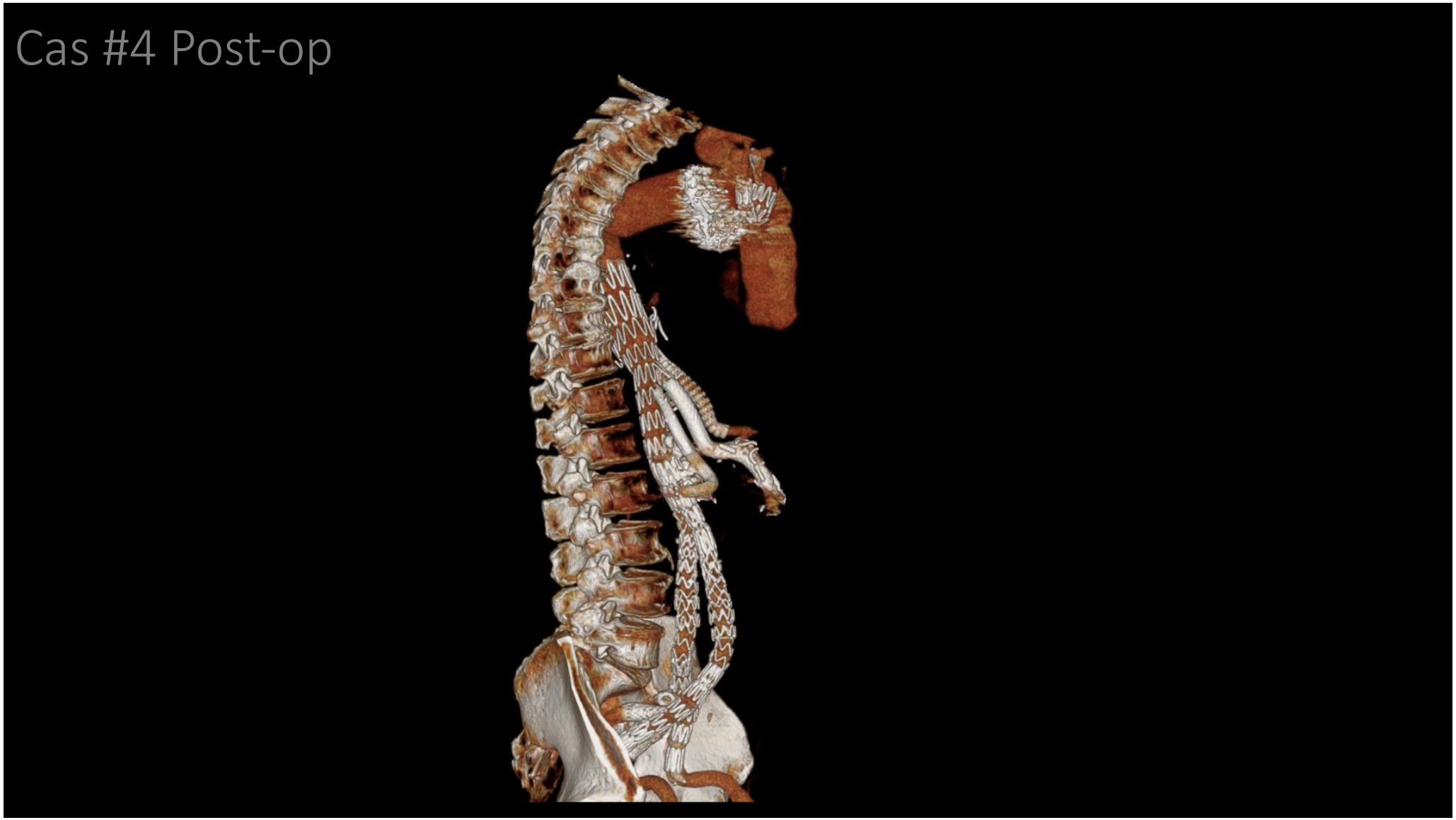

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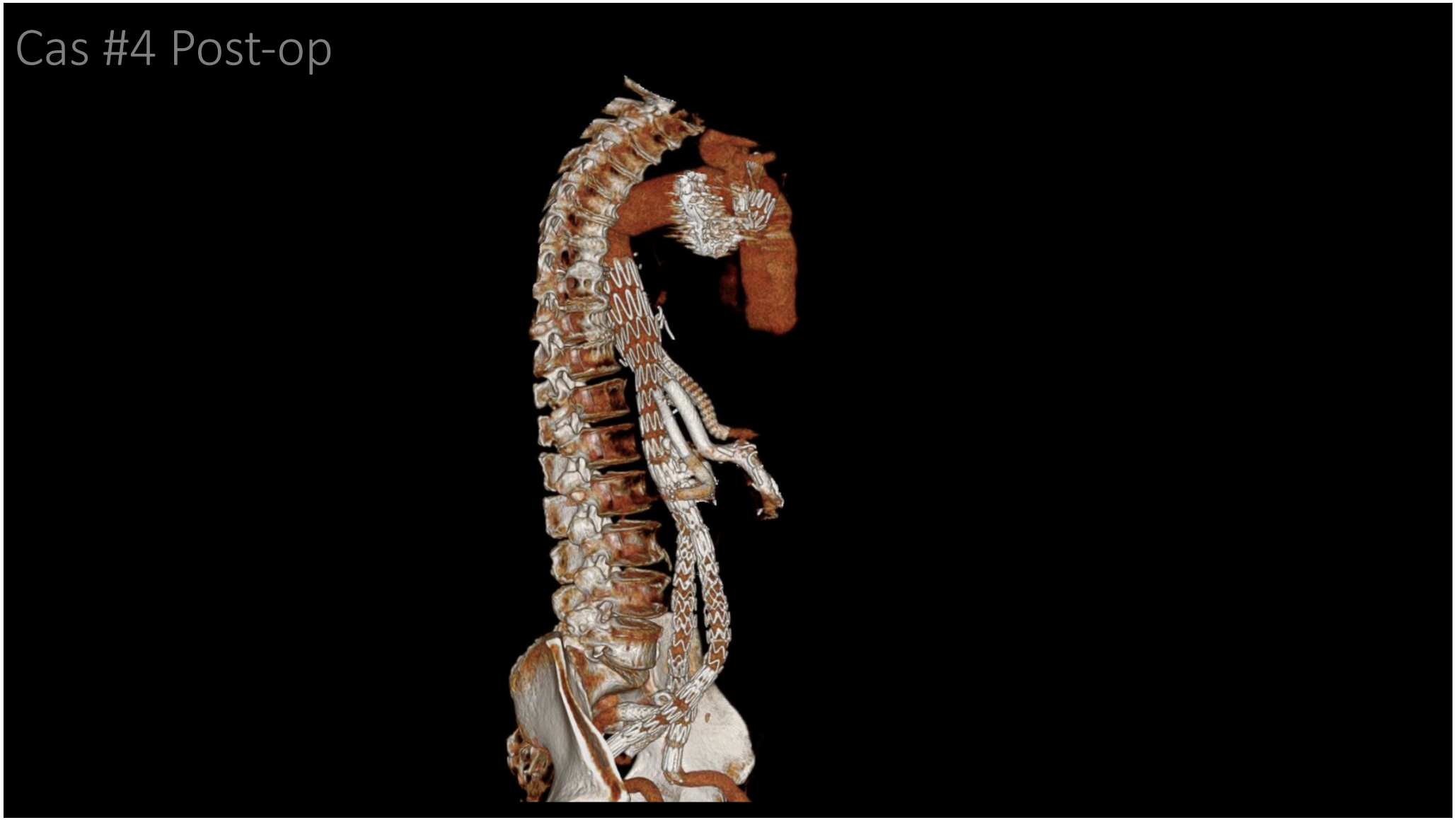

Cas #4 Post-op

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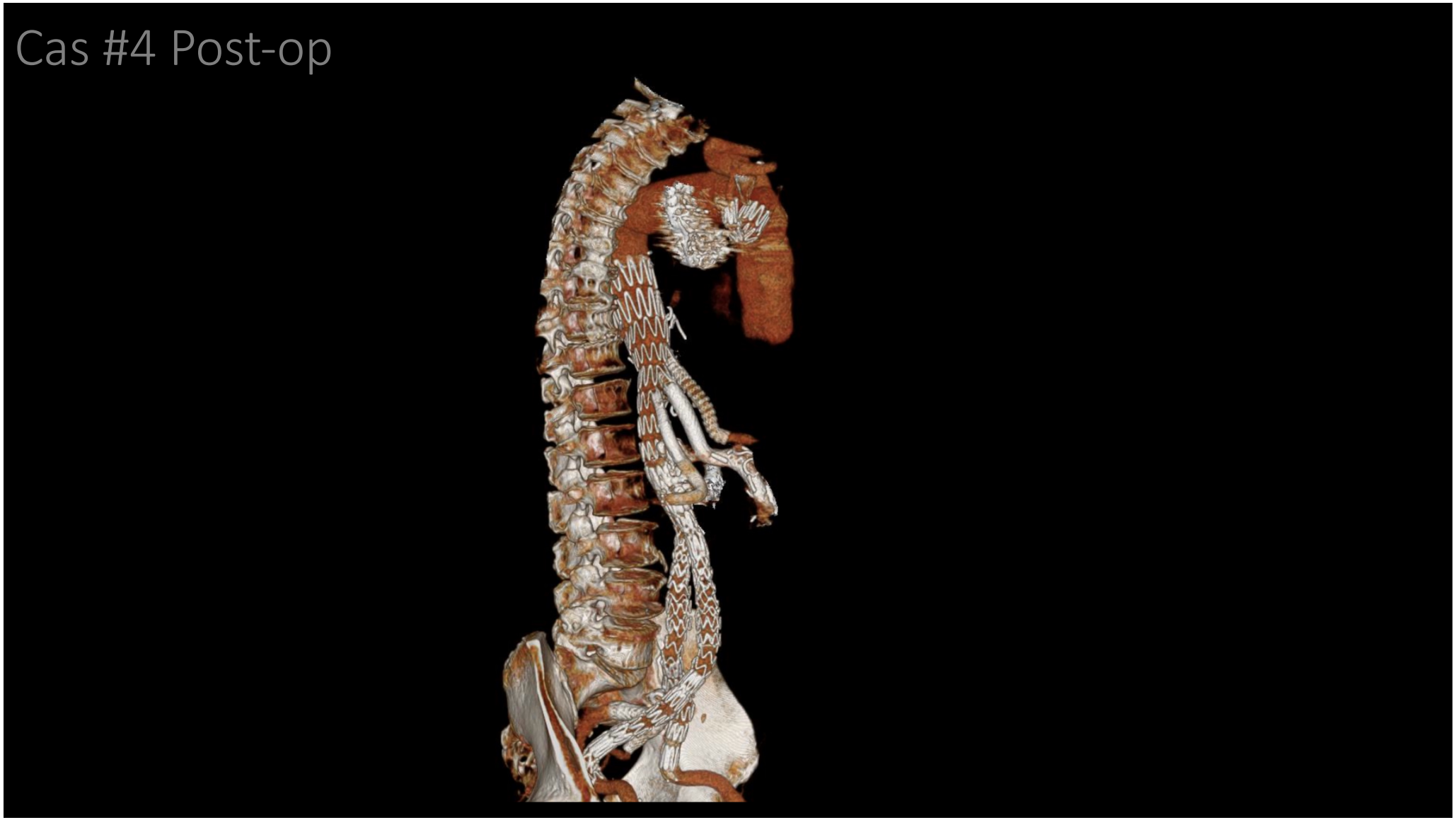
Cas #4 Post-op



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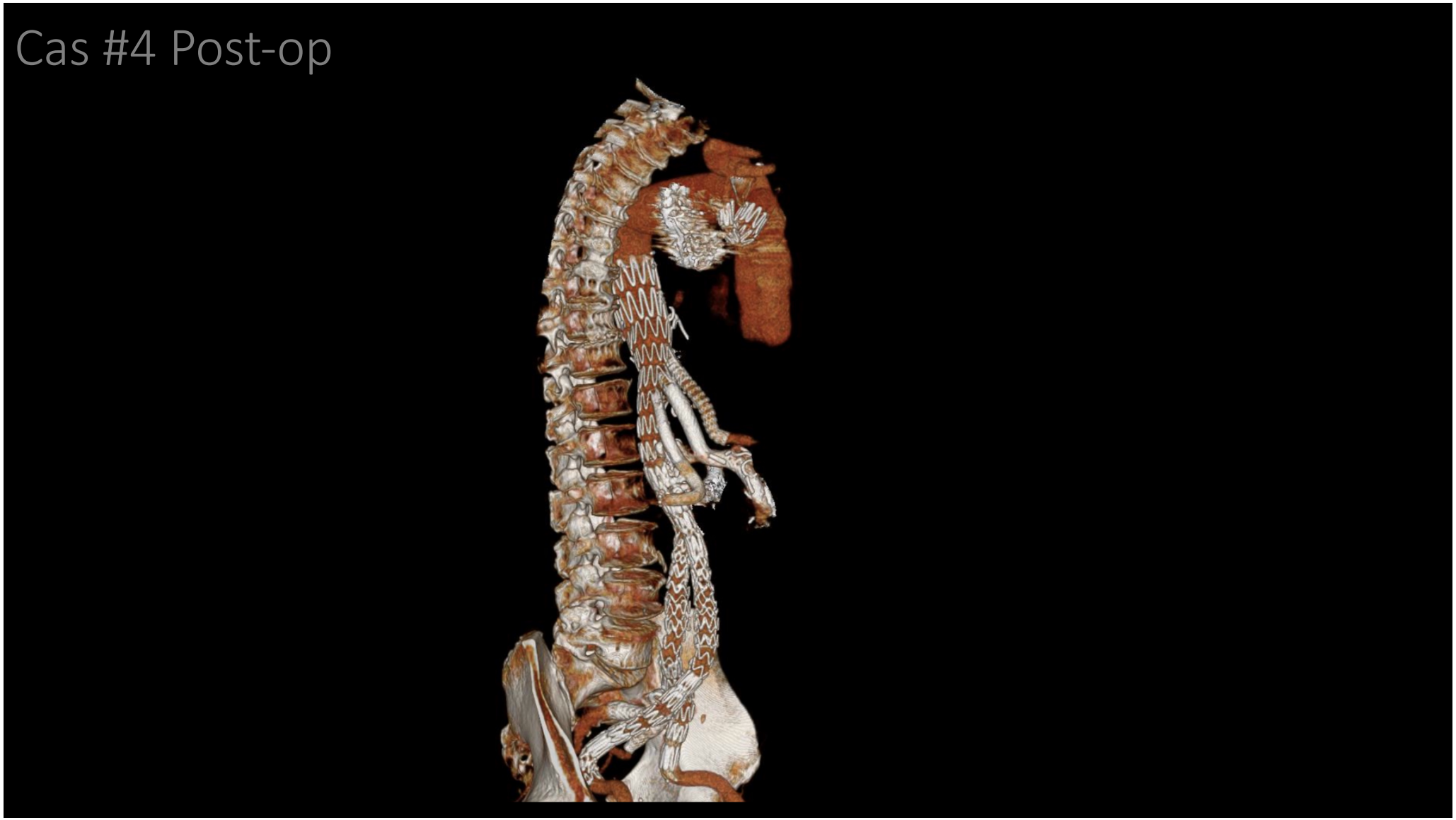

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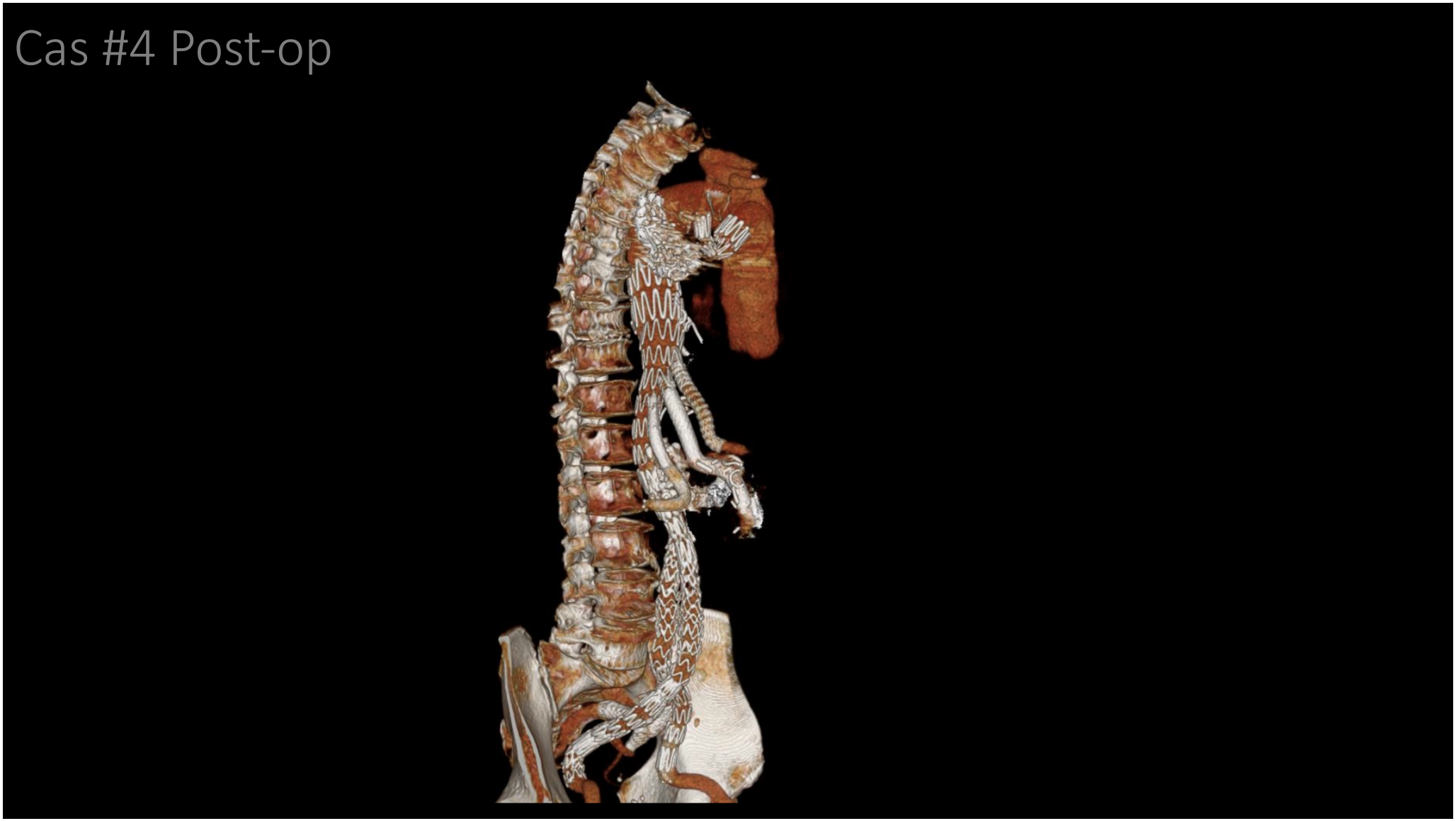

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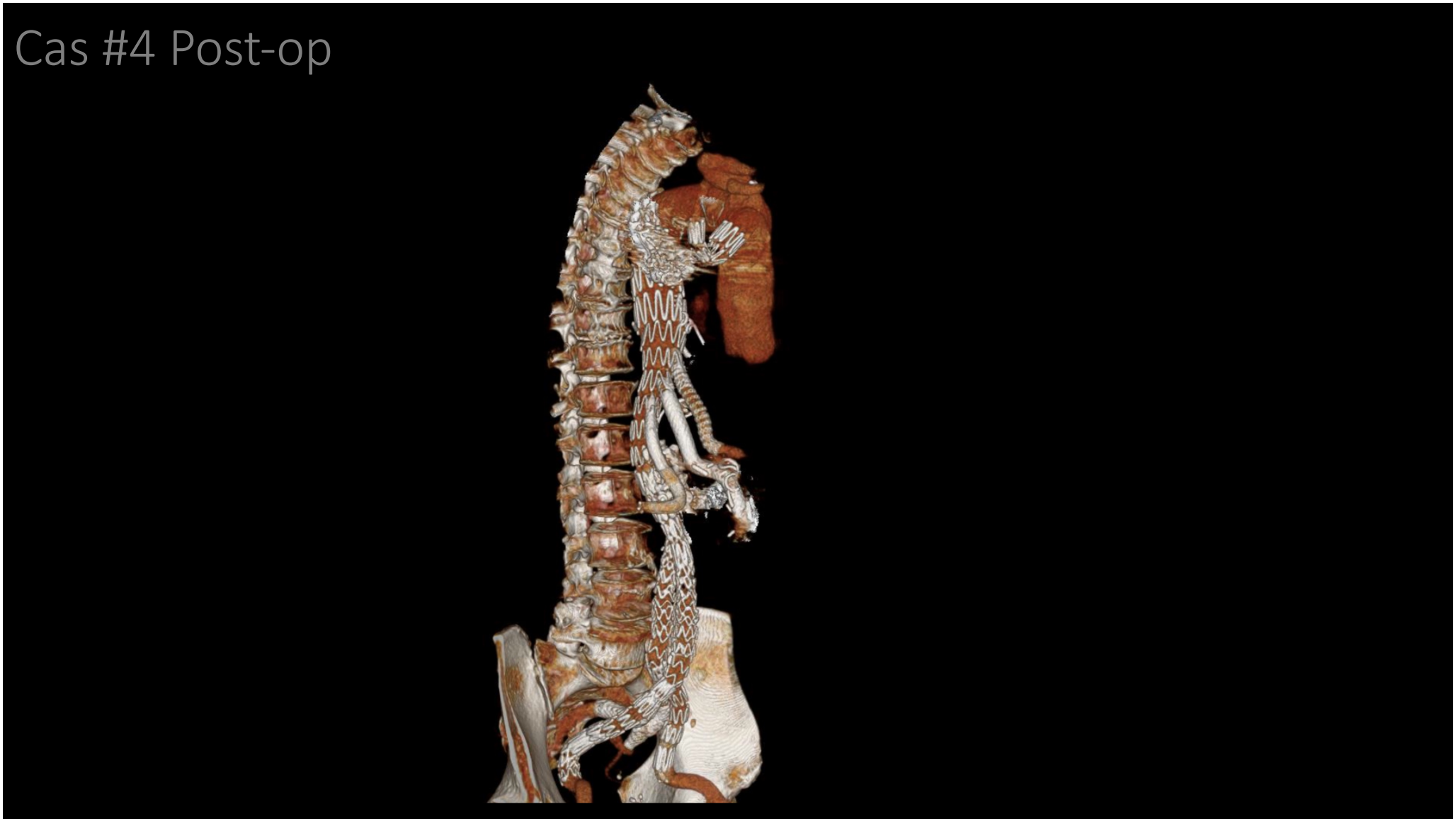

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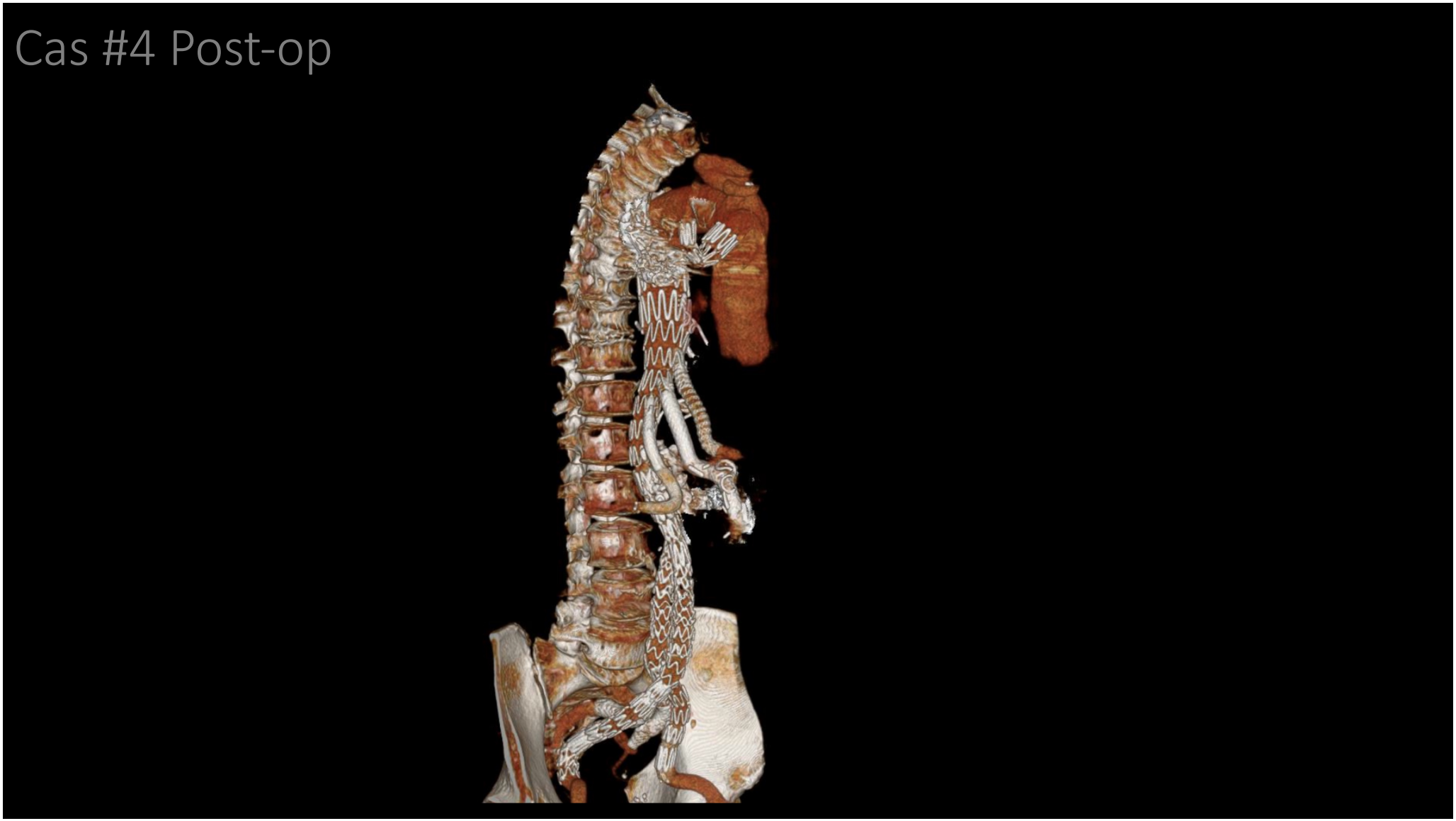

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Cas #4 Post-op

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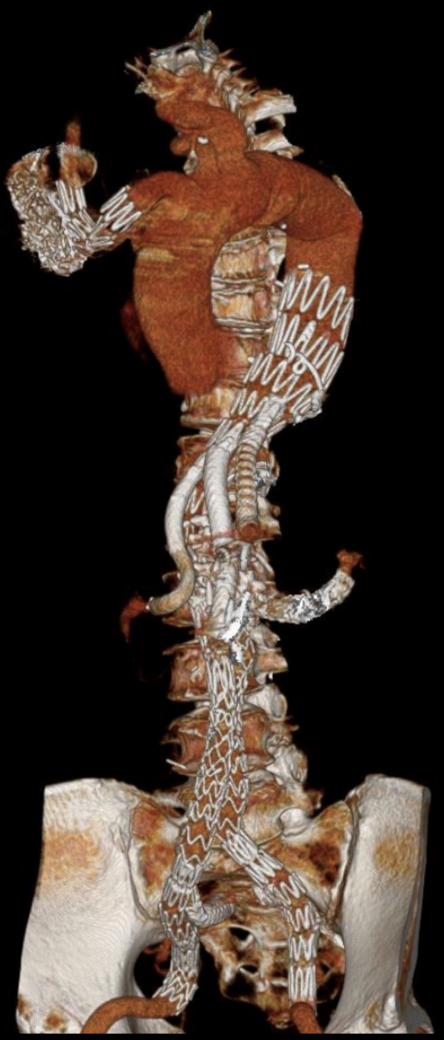
Cas #4 Post-op

Cas #4 Post-op

Cas #4 Post-op



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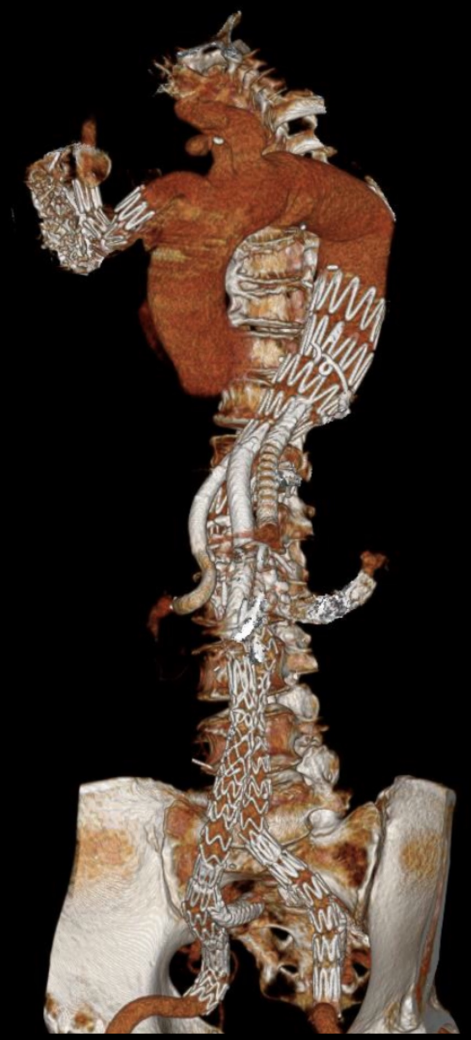
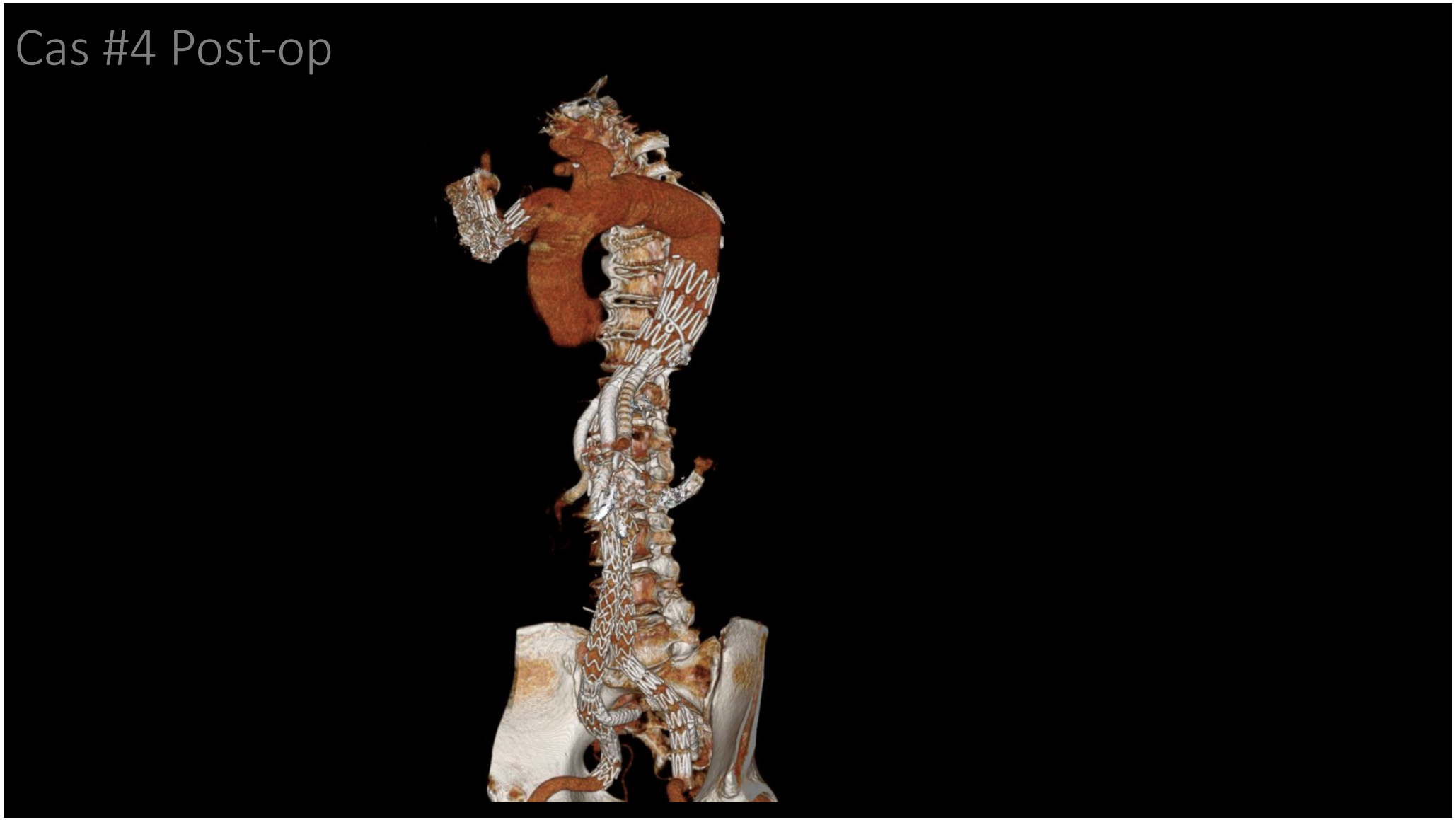


Cas #4 Post-op

Cas #4 Post-op



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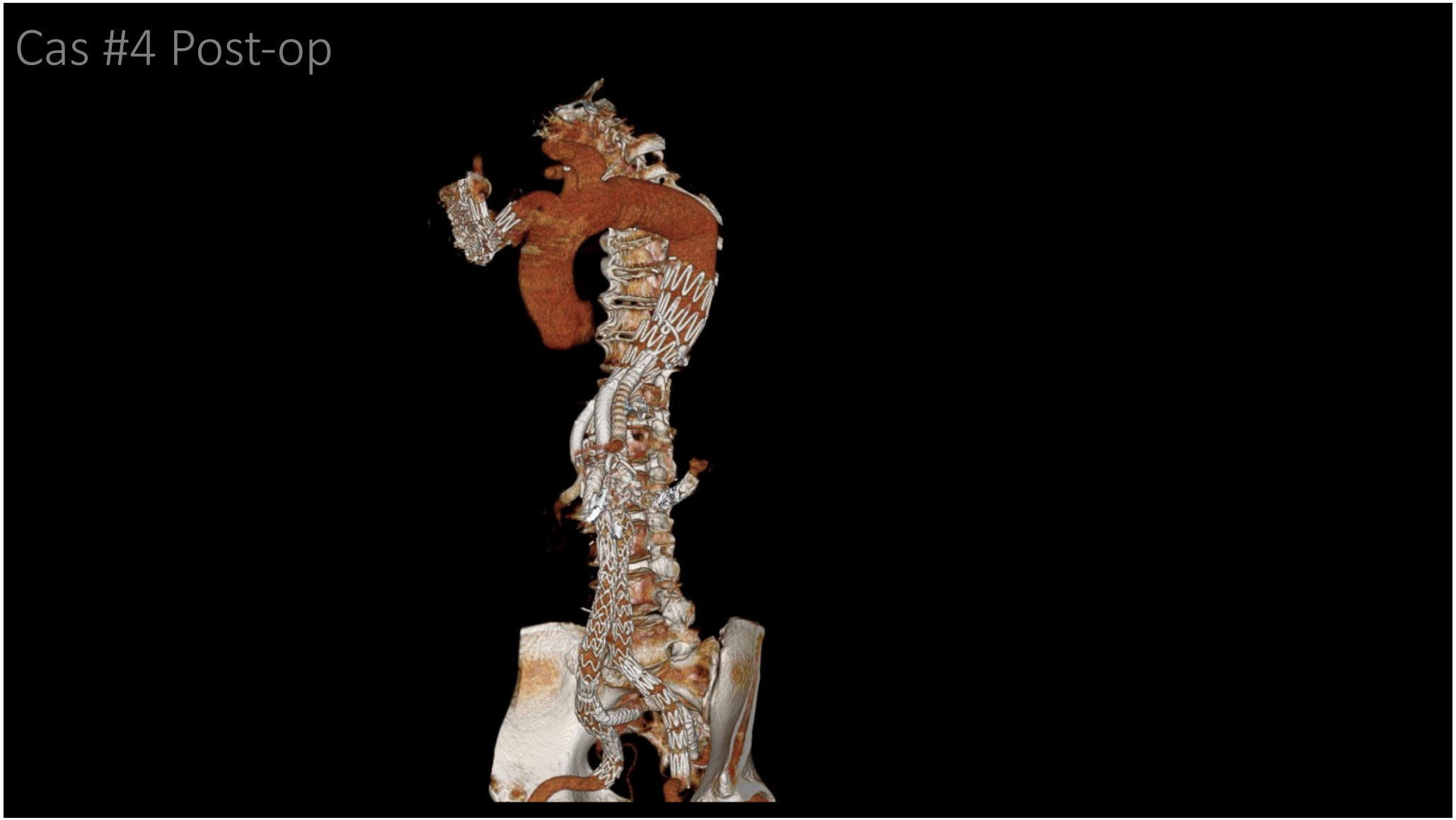

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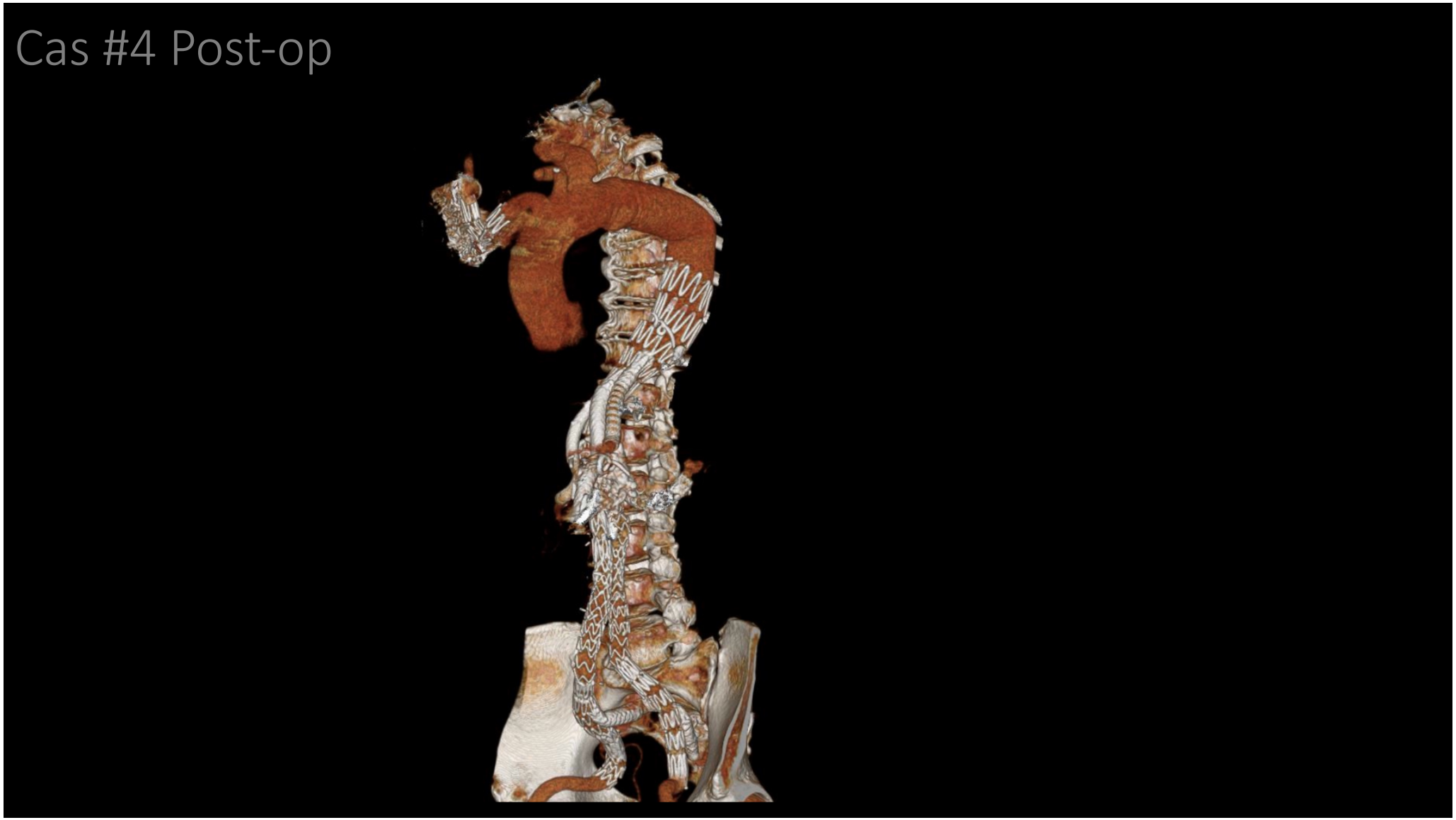

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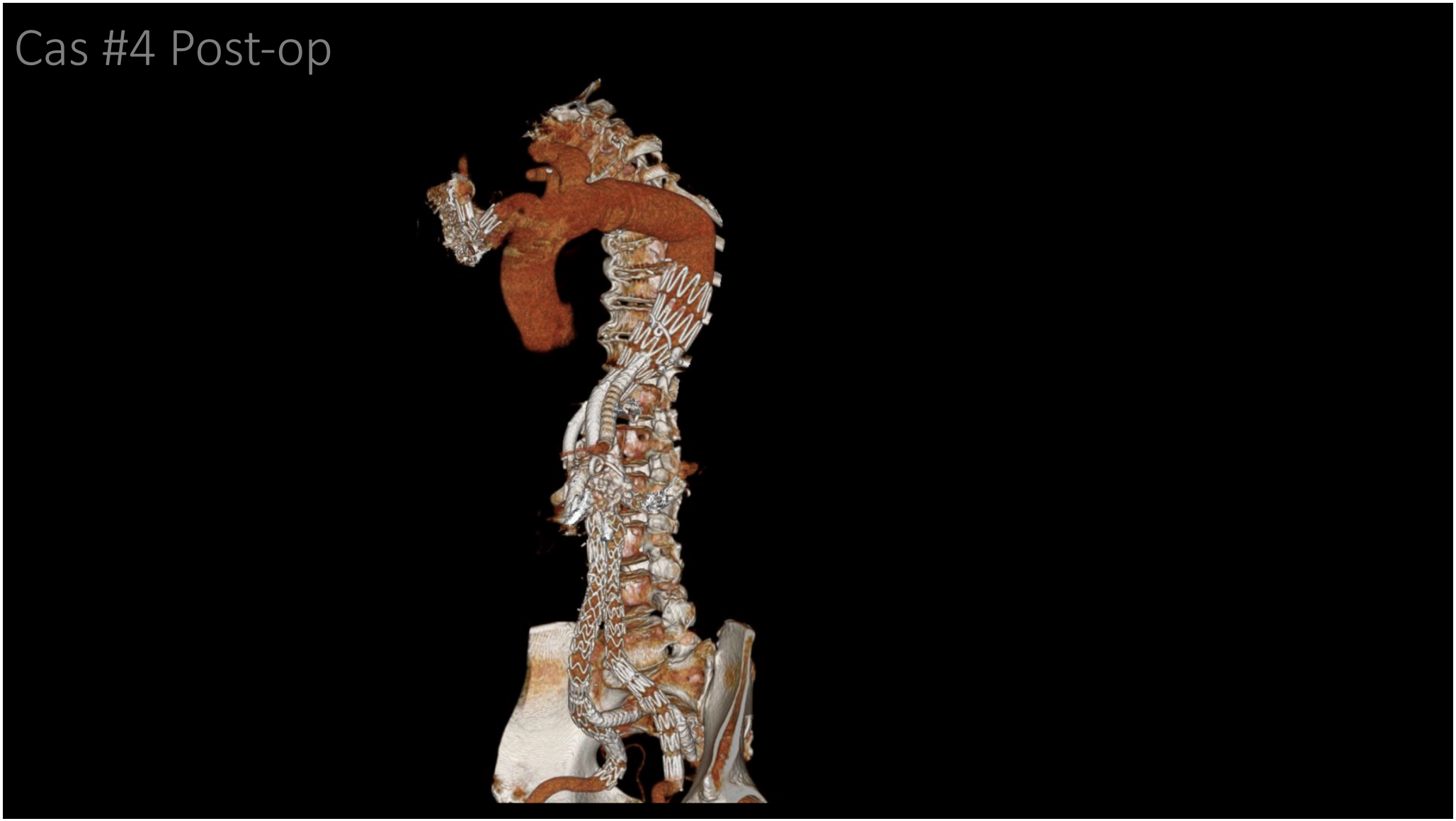


Cas #4 Post-op

Cas #4 Post-op

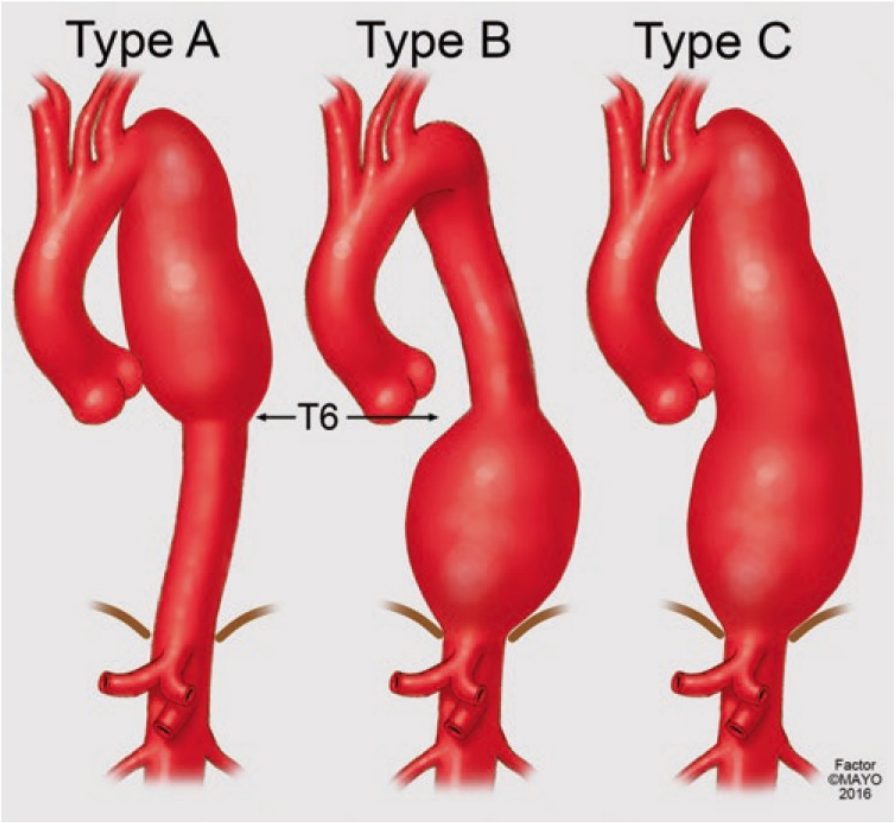
OPTIONS THÉRAPEUTIQUES

AORTE THORACIQUE

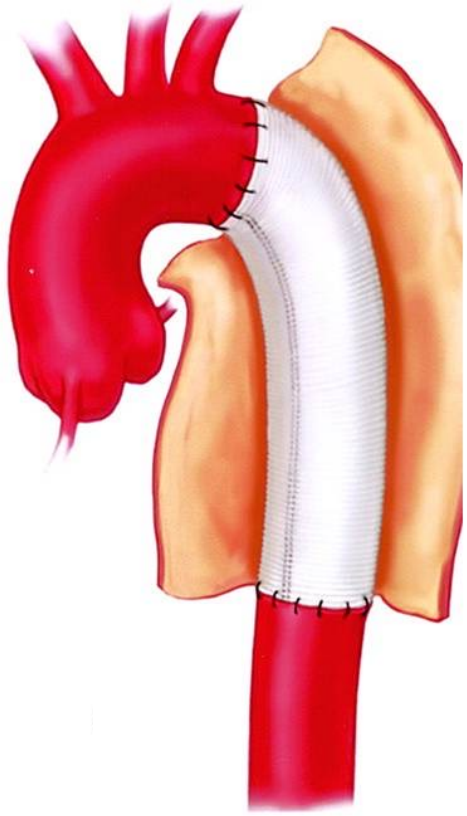
CHUM
CENTRE AORTIQUE

umontréal

Aorte thoracique descendante



Aorte thoracique descendante - Ouvert

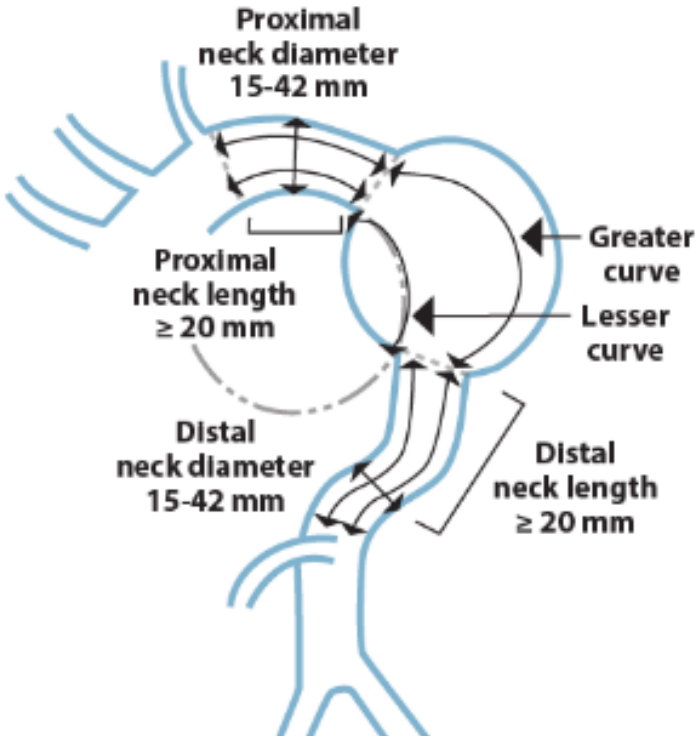


Mortalité 30j: 5-10%
Paraplégie: 5-10%
Dlr chronique: 10-15%

Aorte thoracique descendante - TEVAR

Mortalité 30j: <3%
Paraplegie: <3%
AVC: <2%

Aorte thoracique descendante – TEVAR (Crit. manufacturier)

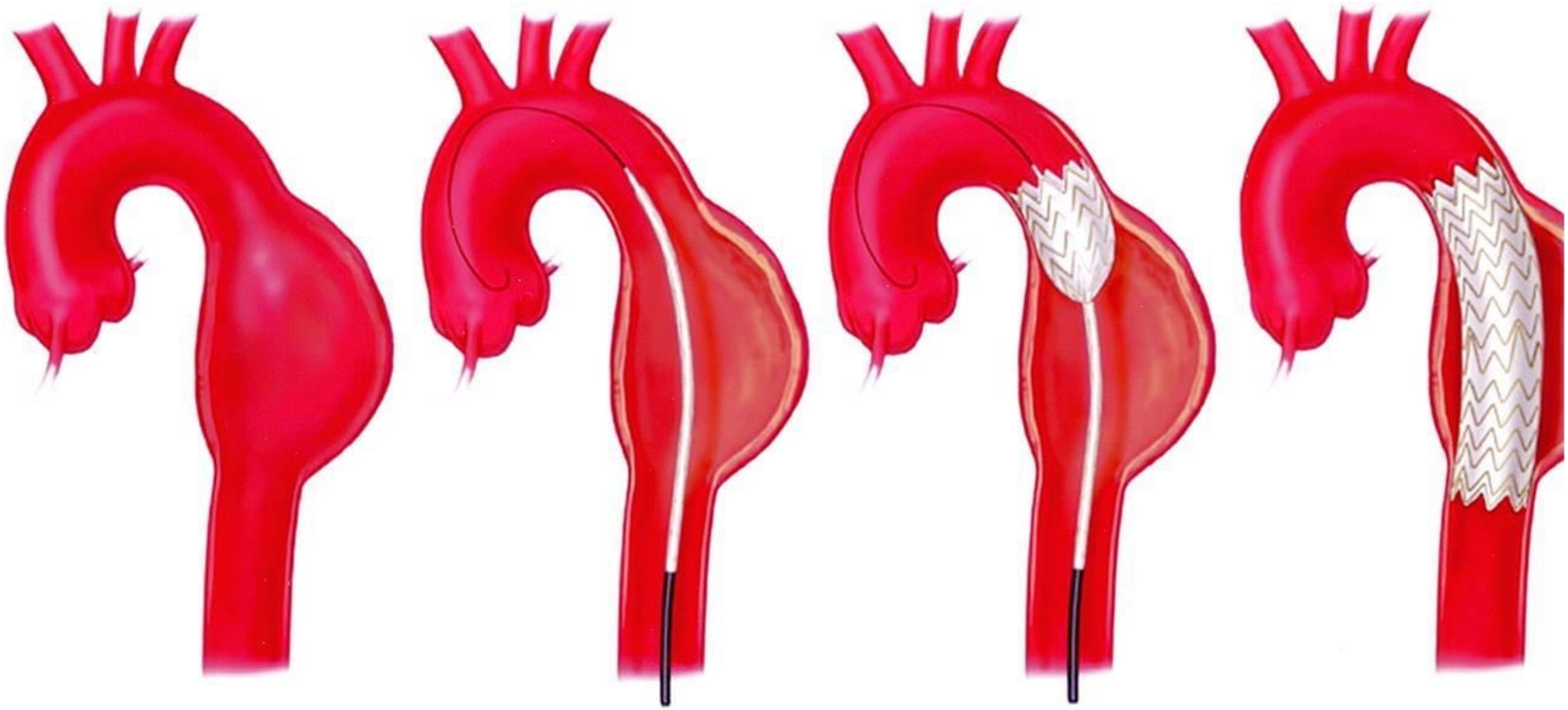


Aorte thoracique descendante – TEVAR (Diff. compagnies)

Product Code							
	Proximal Graft Diameter (mm)	Distal Graft Diameter (mm)	Distal Design			Catheter Outer Diameter (F)	Stent Graft Covered Length (mm)
VAMC	22	22	C	100	TU	22	105
VAMC	24	24	C	100	TU	22	105
VAMC	26	26	C	100	TU	22	105
VAMC	28	28	C	100	TU	22	110
VAMC	30	30	C	100	TU	22	110
VAMC	32	32	C	100	TU	22	110
VAMC	34	34	C	100	TU	24	100
VAMC	36	36	C	100	TU	24	100
VAMC	38	38	C	100	TU	24	100
VAMC	40	40	C	100	TU	24	100
VAMC	42	42	C	100	TU	25	105
VAMC	44	44	C	100	TU	25	105
VAMC	46	46	C	100	TU	25	105
VAMC	22	22	C	150	TU	22	145
VAMC	24	24	C	150	TU	22	145
VAMC	26	26	C	150	TU	22	145
VAMC	28	28	C	150	TU	22	150
VAMC	30	30	C	150	TU	22	150
VAMC	32	32	C	150	TU	22	150
VAMC	34	34	C	150	TU	24	160
VAMC	36	36	C	150	TU	24	160
VAMC	38	38	C	150	TU	24	160
VAMC	40	40	C	150	TU	24	160
VAMC	42	42	C	150	TU	25	150
VAMC	44	44	C	150	TU	25	150
VAMC	46	46	C	150	TU	25	155
VAMC	30	30	C	200	TU	22	185
VAMC	32	32	C	200	TU	22	185
VAMC	34	34	C	200	TU	24	205
VAMC	36	36	C	200	TU	24	200
VAMC	38	38	C	200	TU	24	200
VAMC	40	40	C	200	TU	24	205
VAMC	42	42	C	200	TU	25	200
VAMC	44	44	C	200	TU	25	205
VAMC	46	46	C	200	TU	25	205

Order Number	Reference Part Number	Aortic Vessel OD mm	Diameter mm	Length mm	Introducer Sheath ID/OD Fr (mm)/mm
18 mm Diameter					
G34671	ZTA-P-18-105	15-16	18	105	16 (5.3)/6.0
20 mm Diameter					
G34673	ZTA-P-20-105	17	20	105	16 (5.3)/6.0
22 mm Diameter					
G34675	ZTA-P-22-105	18-19	22	105	16 (5.3)/6.0
24 mm Diameter					
G34677	ZTA-P-24-105	20-21	24	105	16 (5.3)/6.0
26 mm Diameter					
G34679	ZTA-P-26-105	22-23	26	105	16 (5.3)/6.0
28 mm Diameter					
G34682	ZTA-P-28-109	24-25	28	109	16 (5.3)/6.0
G34683	ZTA-P-28-155	24-25	28	155	16 (5.3)/6.0
G34684	ZTA-P-28-201	24-25	28	201	16 (5.3)/6.0
30 mm Diameter					
G34685	ZTA-P-30-109	26-27	30	109	16 (5.3)/6.0
G34687	ZTA-P-30-155	26-27	30	155	16 (5.3)/6.0
G34688	ZTA-P-30-201	26-27	30	201	16 (5.3)/6.0
32 mm Diameter					
G34689	ZTA-P-32-109	28-29	32	109	18 (6.0)/7.1
G34691	ZTA-P-32-155	28-29	32	155	18 (6.0)/7.1
G34692	ZTA-P-32-201	28-29	32	201	18 (6.0)/7.1
34 mm Diameter					
G34694	ZTA-P-34-113	30	34	113	18 (6.0)/7.1
G34696	ZTA-P-34-161	30	34	161	18 (6.0)/7.1
G34697	ZTA-P-34-209	30	34	209	18 (6.0)/7.1
36 mm Diameter					
G34698	ZTA-P-36-113	31-32	36	113	18 (6.0)/7.1
G34700	ZTA-P-36-161	31-32	36	161	18 (6.0)/7.1
G34701	ZTA-P-36-209	31-32	36	209	18 (6.0)/7.1
38 mm Diameter					
G34702	ZTA-P-38-117	33-34	38	117	18 (6.0)/7.1
G34704	ZTA-P-38-167	33-34	38	167	18 (6.0)/7.1
G34705	ZTA-P-38-217	33-34	38	217	18 (6.0)/7.1
40 mm Diameter					
G34706	ZTA-P-40-117	35-36	40	117	20 (6.7)/7.7
G34708	ZTA-P-40-167	35-36	40	167	20 (6.7)/7.7
G34709	ZTA-P-40-217	35-36	40	217	20 (6.7)/7.7
42 mm Diameter					
G34710	ZTA-P-42-121	37-38	42	121	20 (6.7)/7.7
G34713	ZTA-P-42-173	37-38	42	173	20 (6.7)/7.7
G34714	ZTA-P-42-225	37-38	42	225	20 (6.7)/7.7
44 mm Diameter					
G34715	ZTA-P-44-125	39	44	125	20 (6.7)/7.7
G34717	ZTA-P-44-179	39	44	179	20 (6.7)/7.7
G34718	ZTA-P-44-233	39	44	233	20 (6.7)/7.7
46 mm Diameter					
G34719	ZTA-P-46-125	40-42	46	125	20 (6.7)/7.7
G34721	ZTA-P-46-179	40-42	46	179	20 (6.7)/7.7
G34722	ZTA-P-46-233	40-42	46	233	20 (6.7)/7.7

Aorte thoracique descendante – TEVAR (étapes)



Cas #1 Post-op *(stage 1)*

Cas #1 Post-op *(stage 1)*

Cas #1 Post-op *(stage 1)*

Cas #1 Post-op *(stage 1)*

Cas #1 Post-op *(stage 1)*

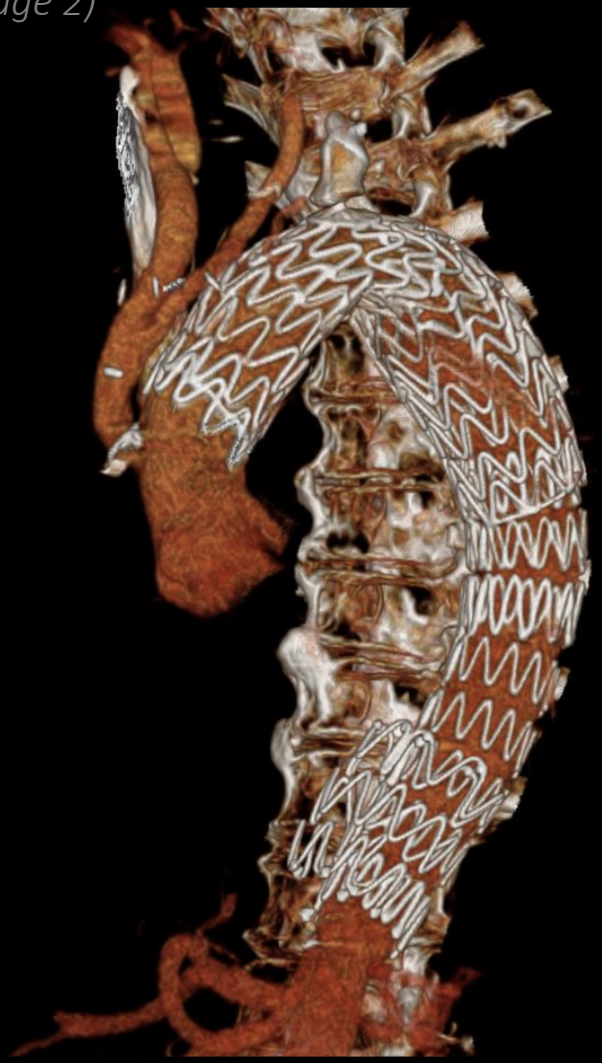
Cas #1 Post-op *(stage 1)*

Cas #1 Post-op *(stage 1)*

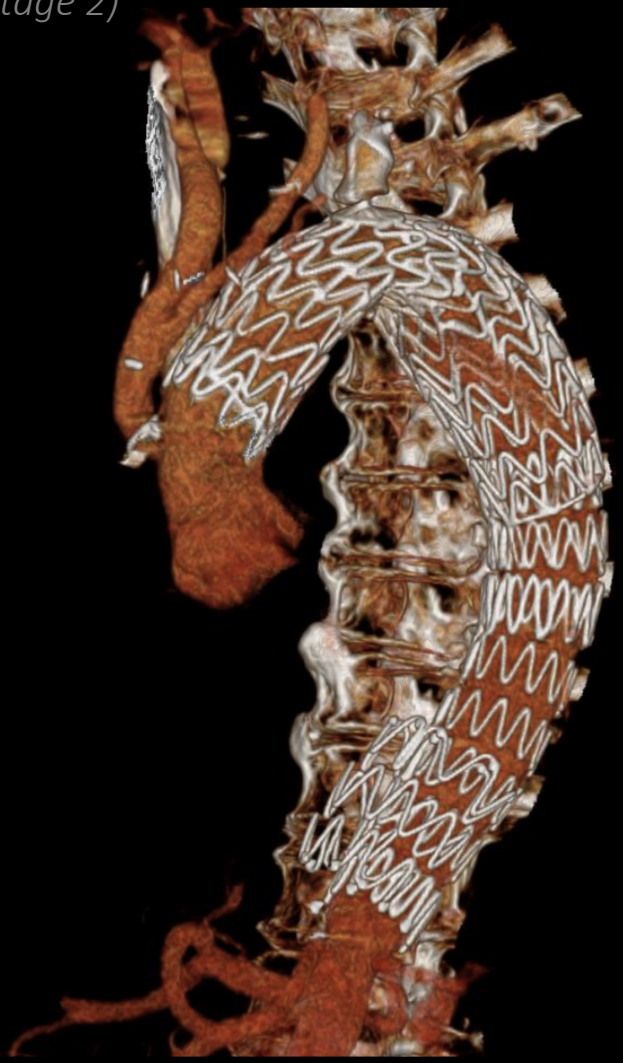
Cas #1 Post-op *(stage 1)*

Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*

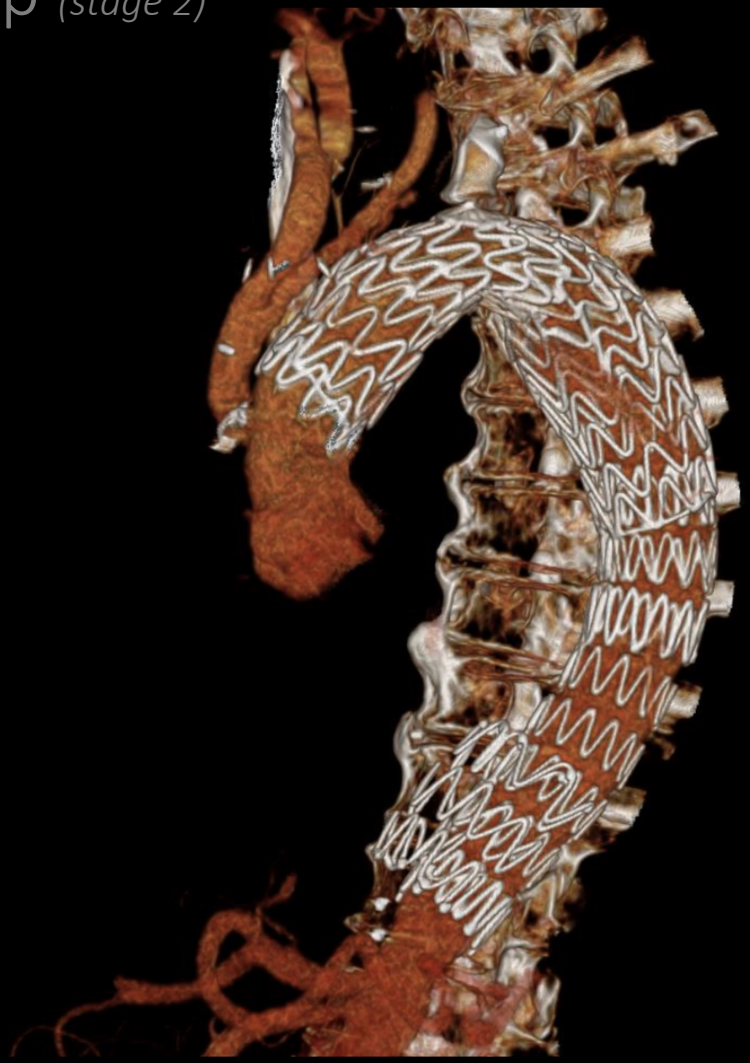


Cas #1 Post-op *(stage 2)*



Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*



Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*

Cas #1 Post-op *(stage 2)*

OPTIONS THÉRAPEUTIQUES

CROSSE AORTIQUE

Anévrisme crosse

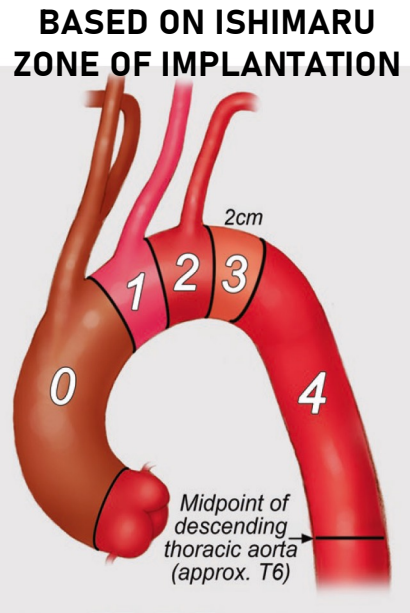
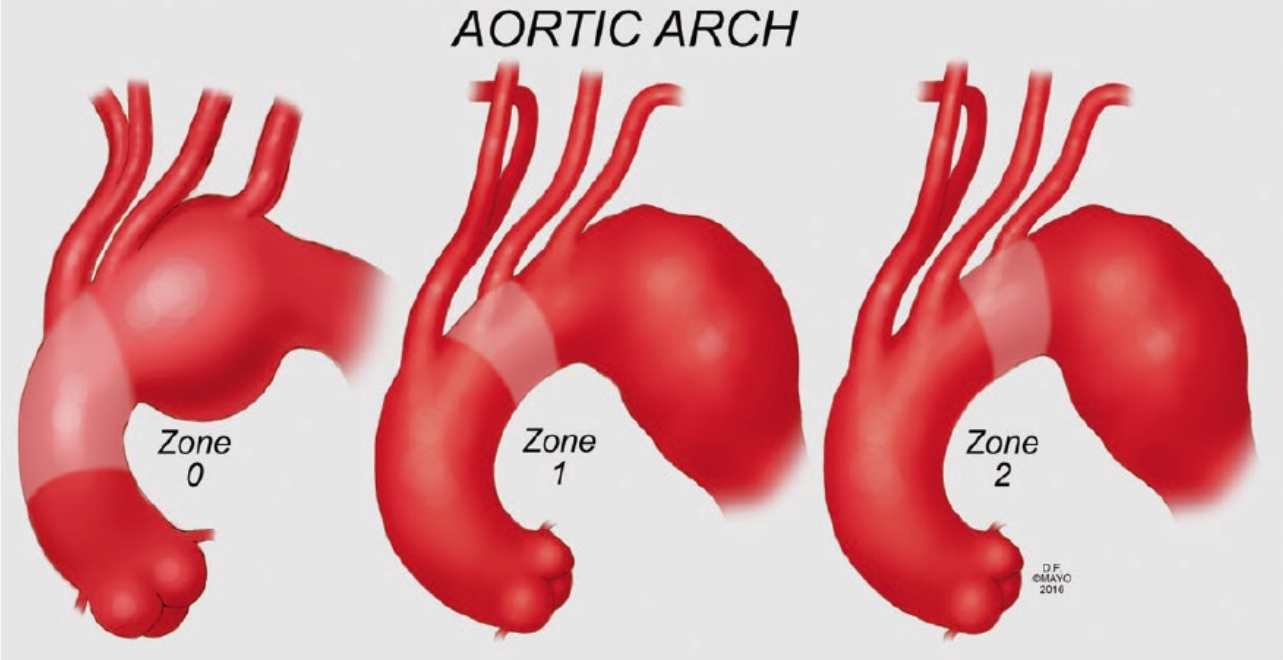
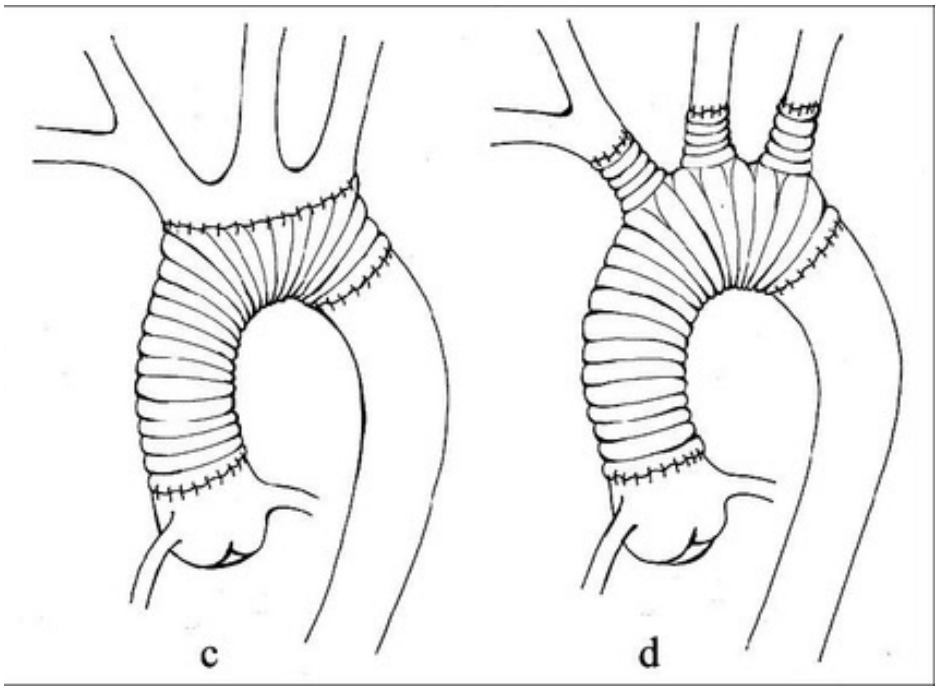


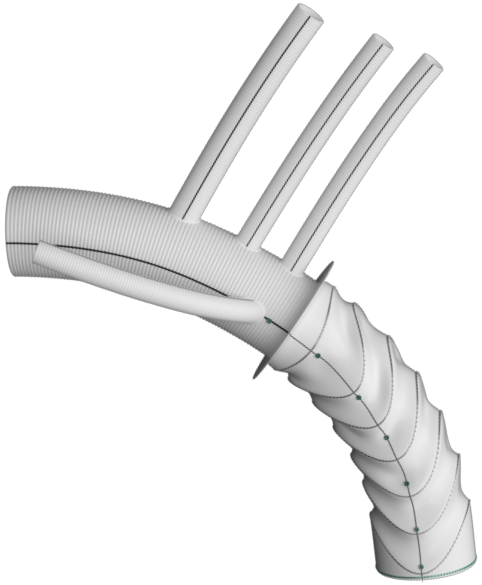
Fig. 5.18 Classification of zones of implantation in the aortic arch. By permission of Mayo Foundation for Medical Education and Research. All rights reserved

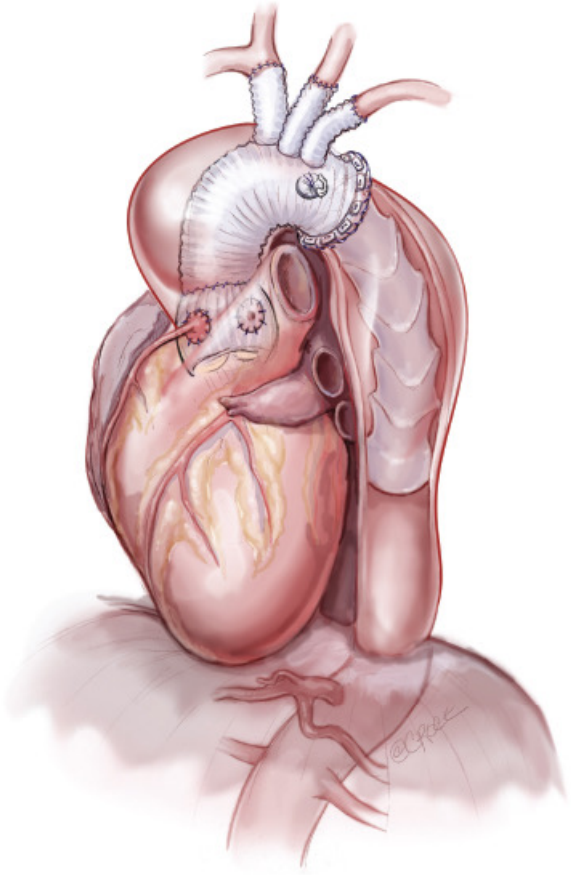


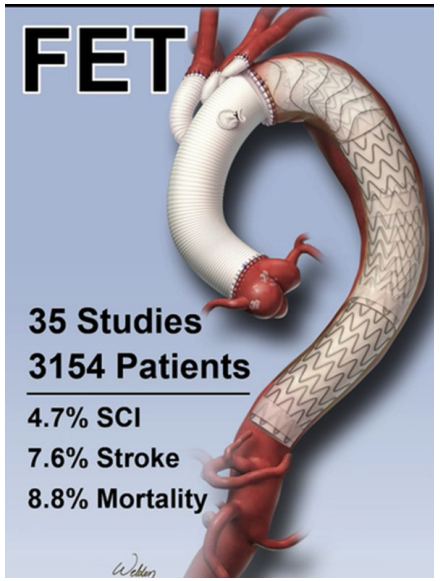
Anévrisme aorte ascendante/crosse - ouvert



Anévrisme aorte crosse - hybride

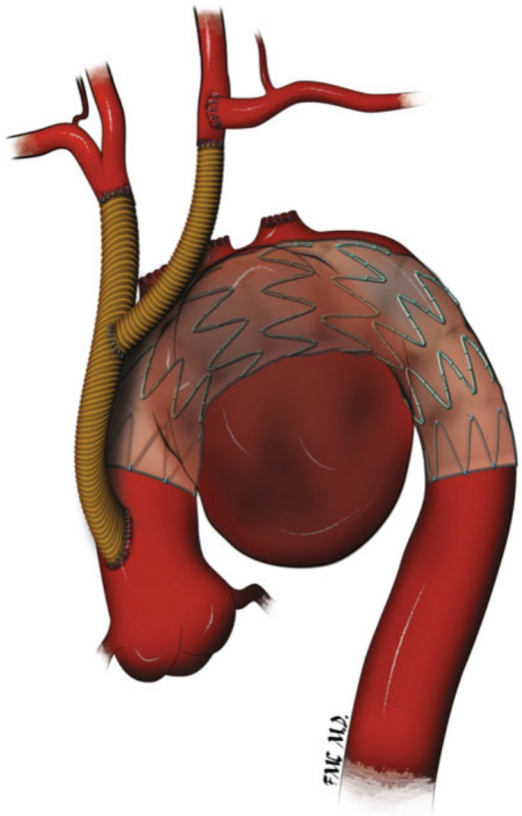






https://doi.org/10.1016/j.jtcvs.2019.10.031

Anévrisme aorte ascendante/crosse - hybride



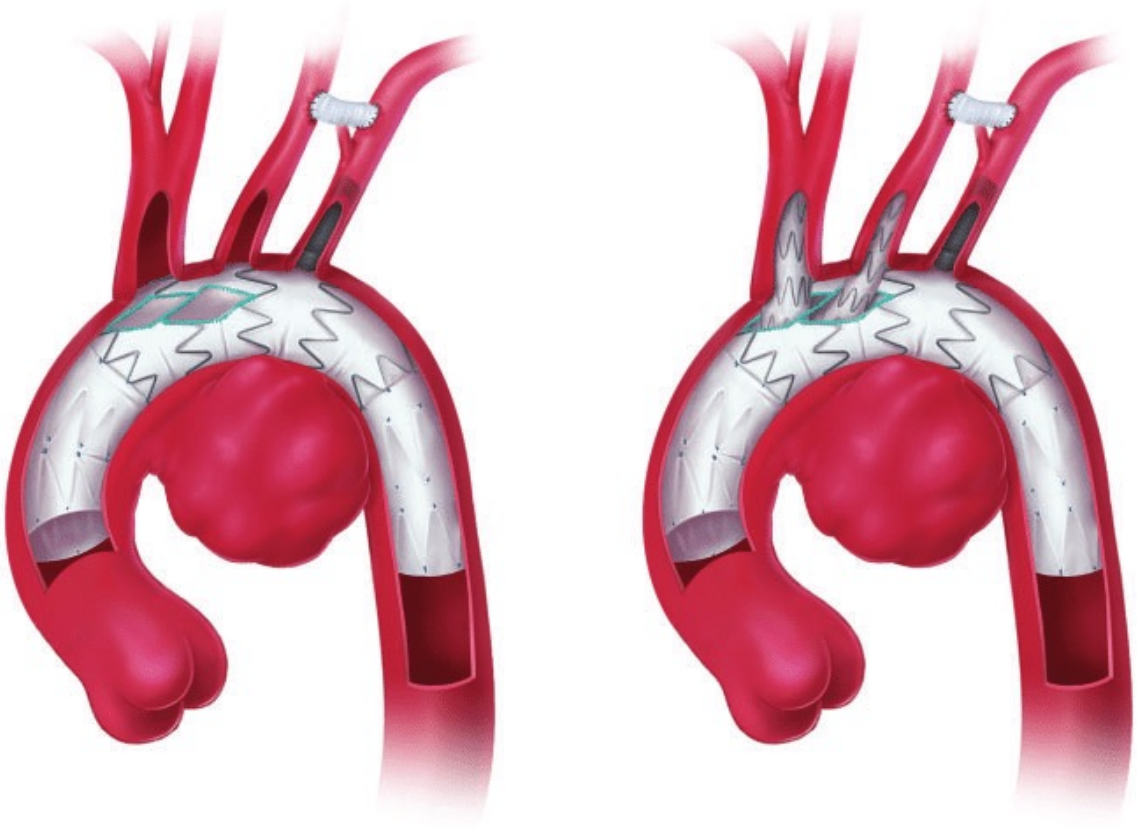
Crosse endo

Terumo Aortic	W.L. Gore & Associates	Cook Medical	Endospan Ltd. / Jotec GmbH
			
Relay Plus Double-Branched Device	TAG Thoracic Branch Endoprosthesis	Zenith Arch Branched Device	Nexus Stent Graft System

Medtronic

Valiant MonaLSA

Anévrisme aorte ascendante/crosse - Endovasculaire



Mortalité 30j: 5-10%
AVC: 10-15%

Endovascular steps

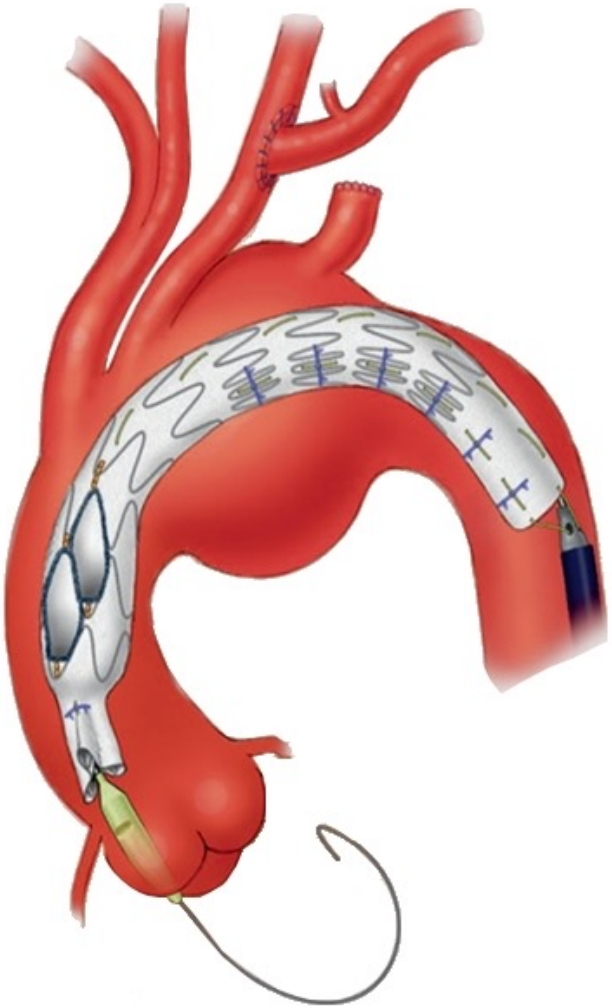
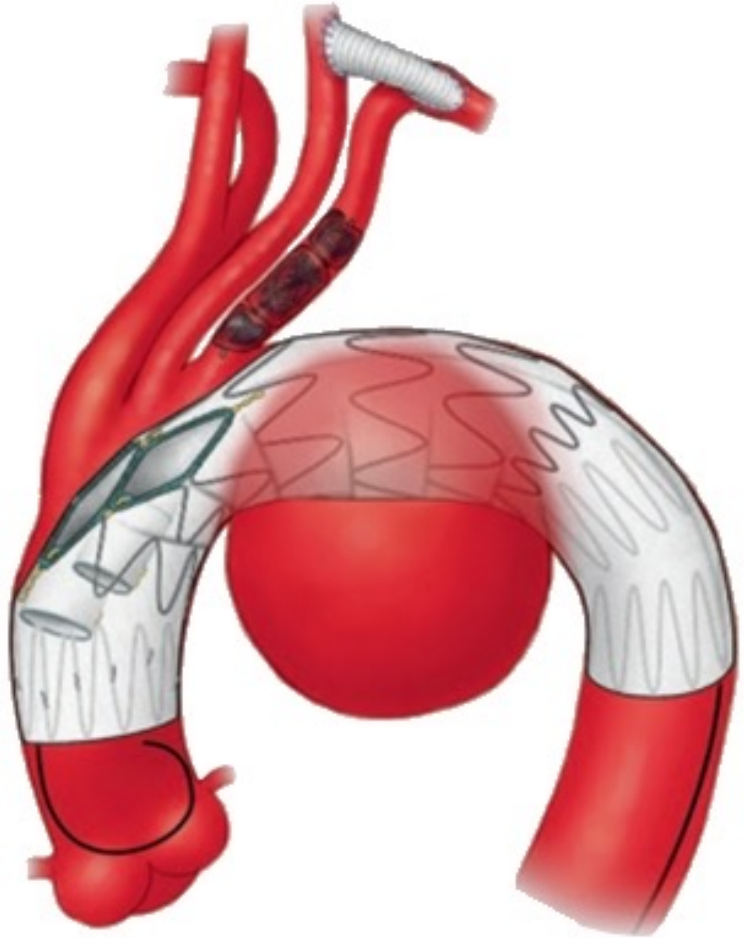
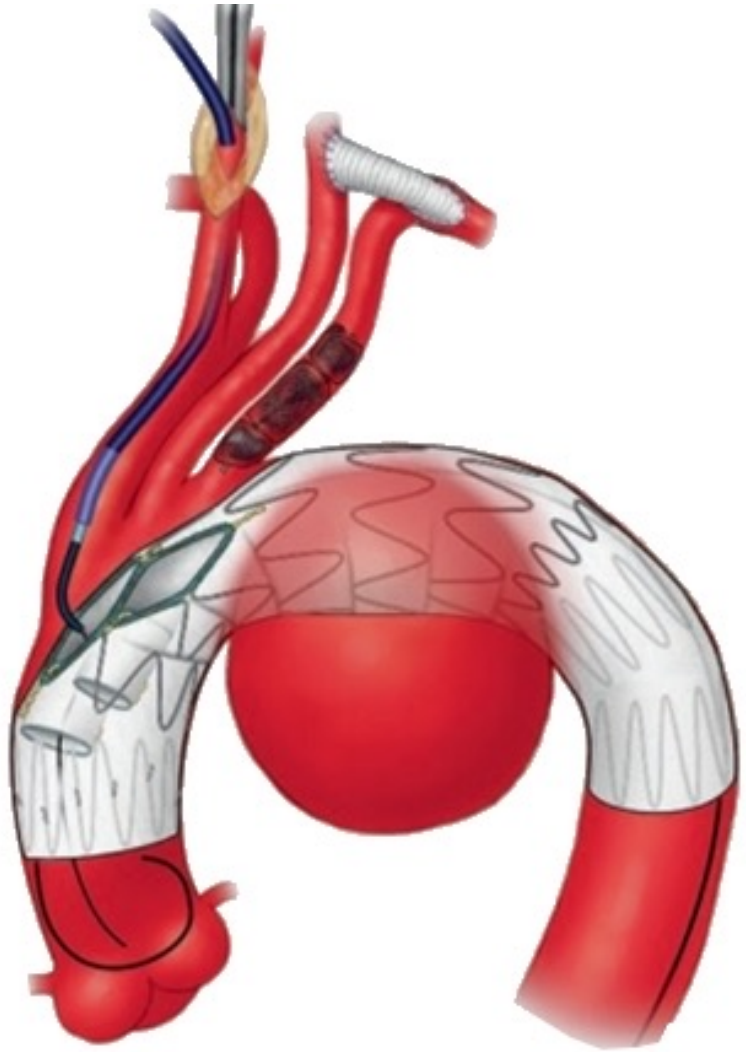


FIGURE 3. The delivery system in this device is curved and thus self-orienting in the arch, so no rotational movement is needed during implantation.

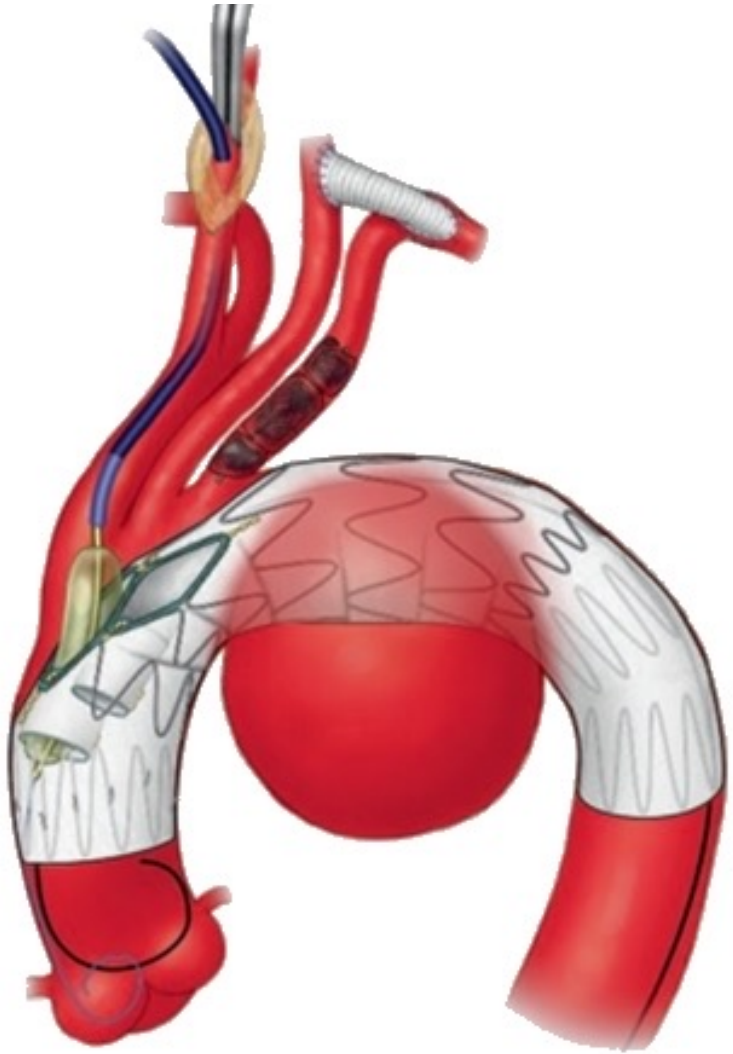
Endovascular steps



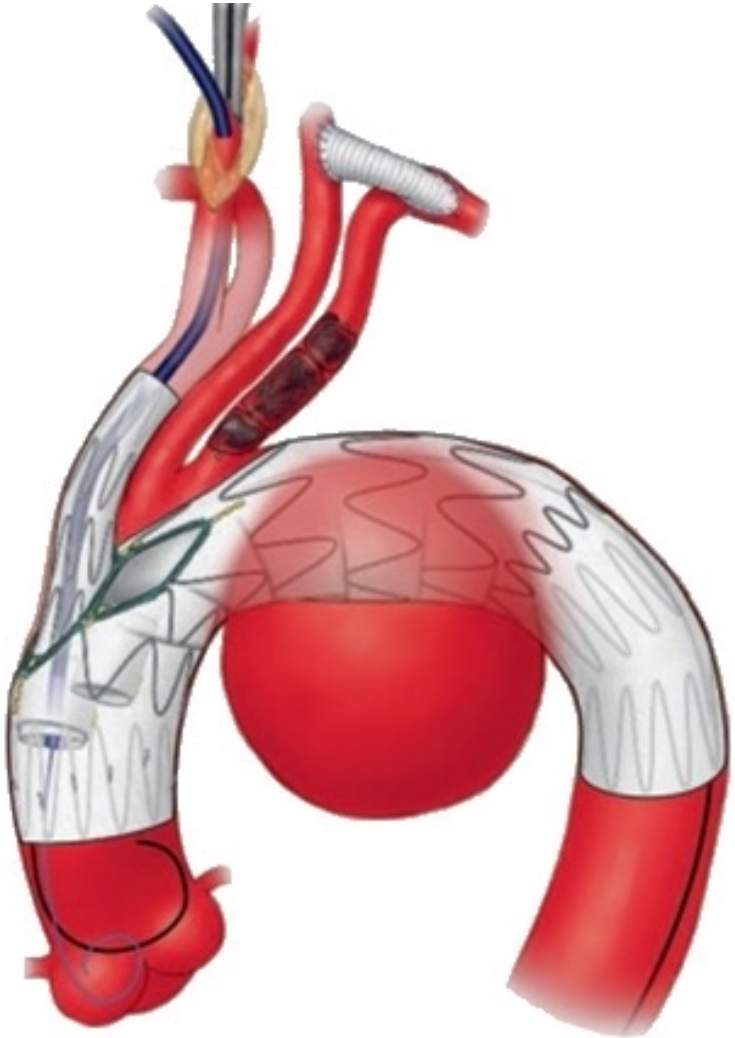
Endovascular steps



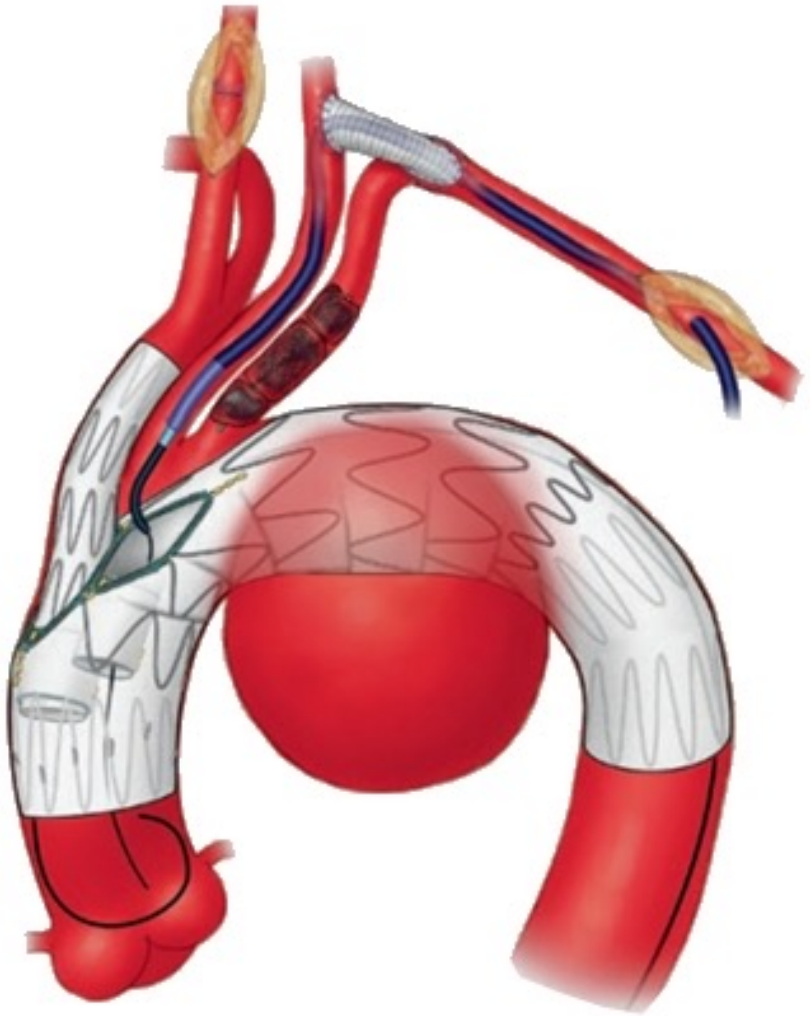
Endovascular steps



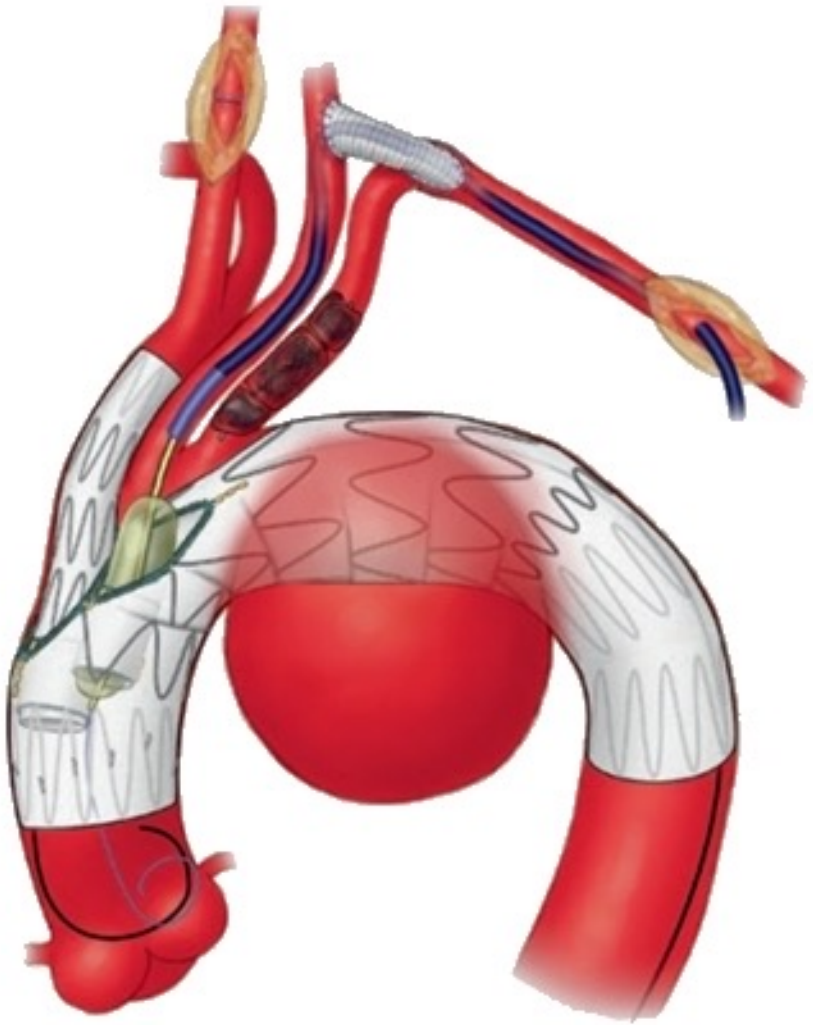
Endovascular steps



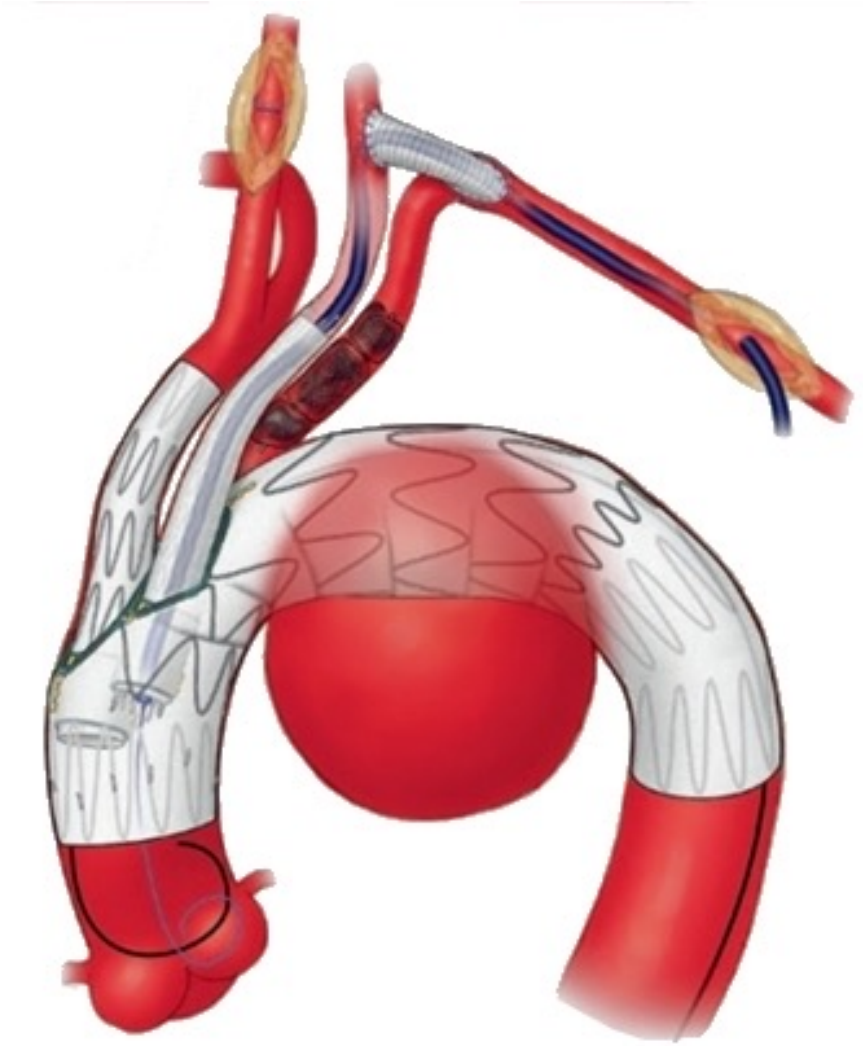
Endovascular steps



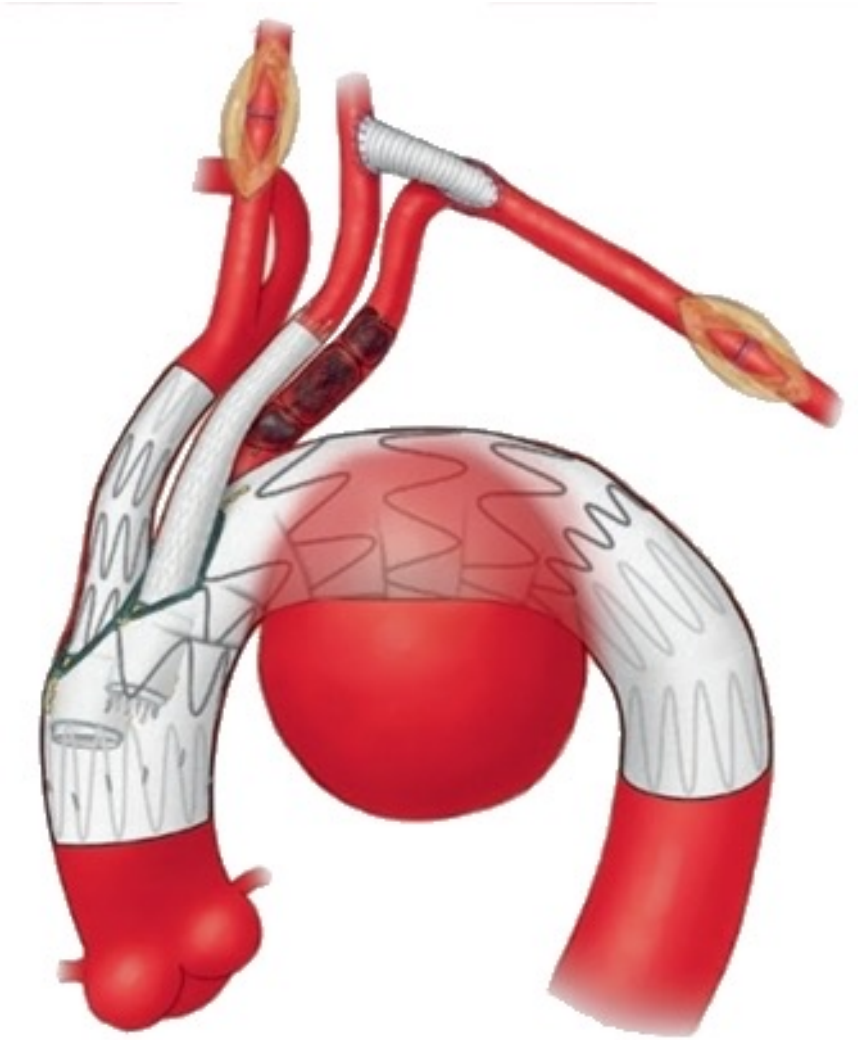
Endovascular steps



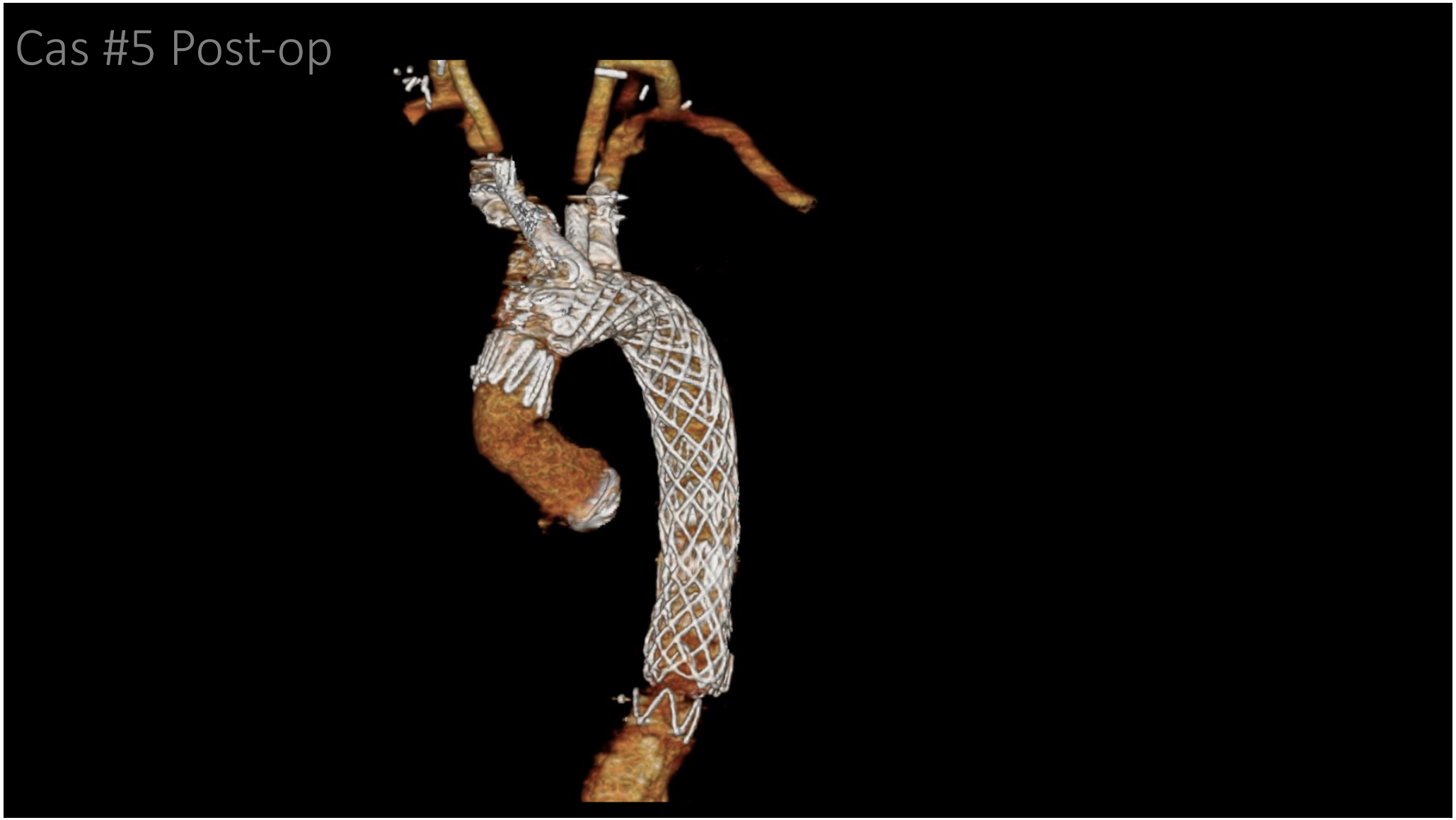
Endovascular steps



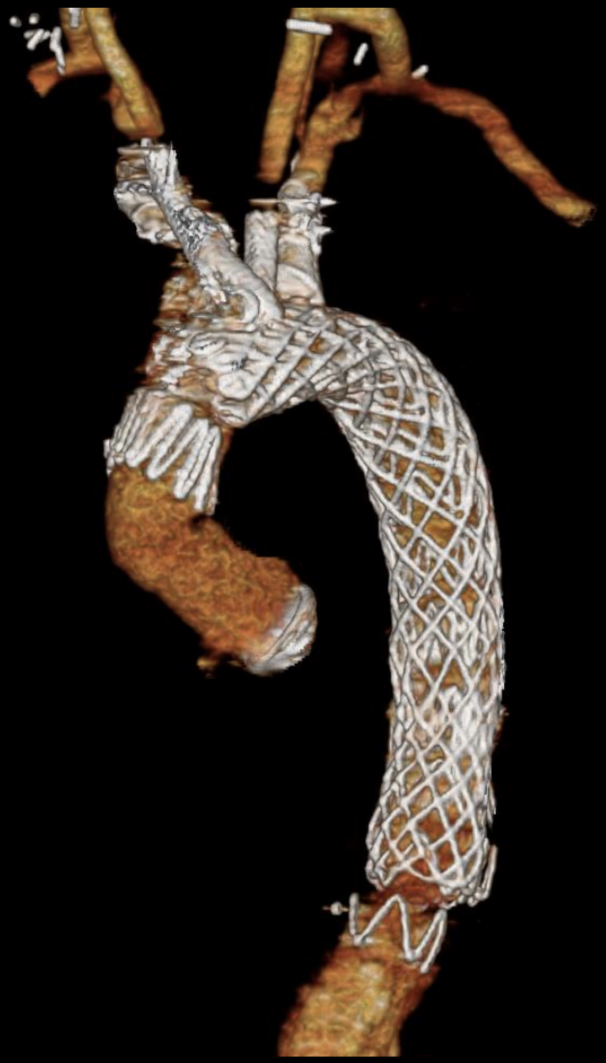
Endovascular steps



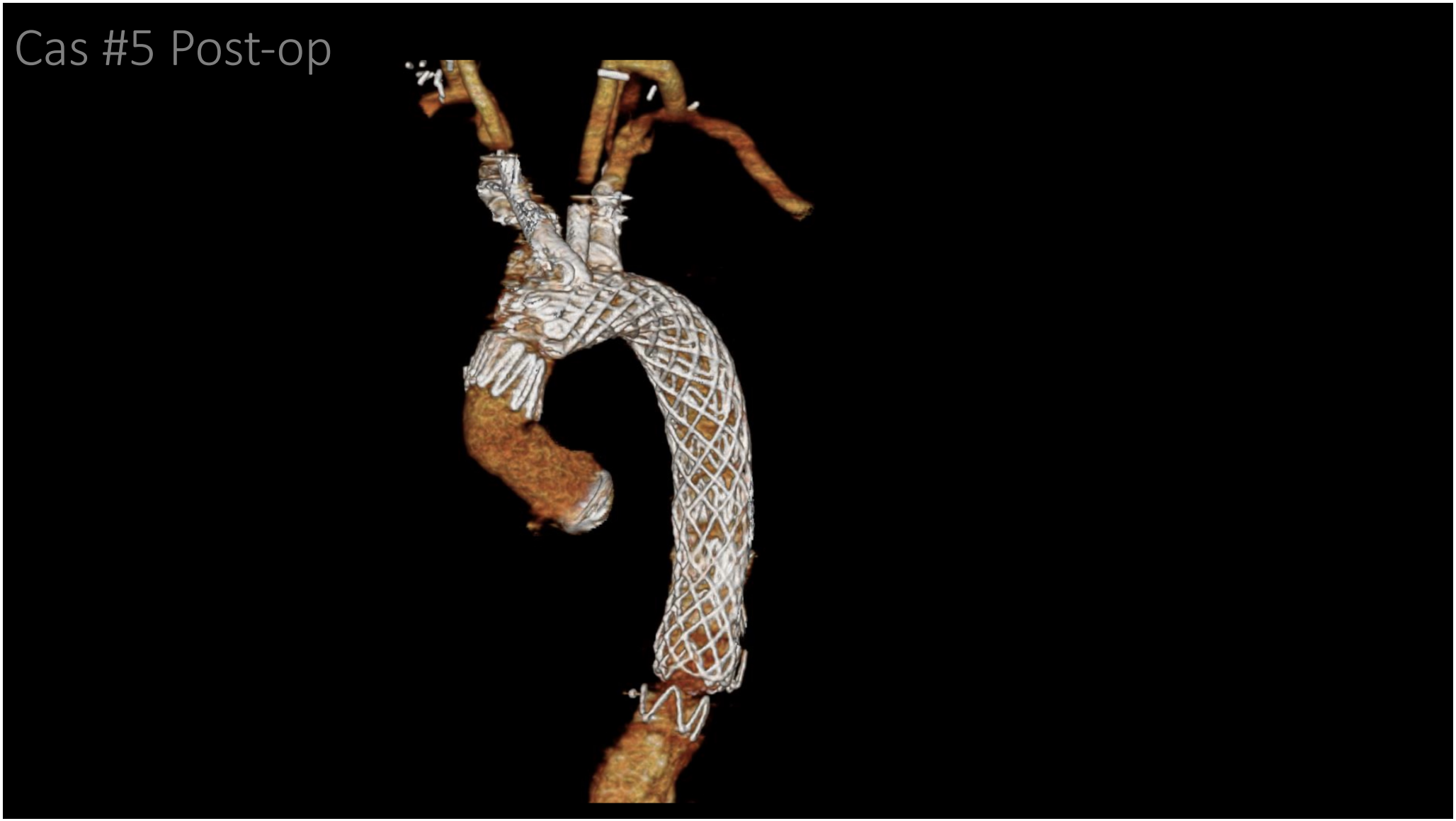
Cas #5 Post-op



Cas #5 Post-op



Cas #5 Post-op



Cas #5 Post-op

Cas #5 Post-op

Cas #5 Post-op

Cas #5 Post-op

Cas #5 Post-op

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Cas #5 Post-op

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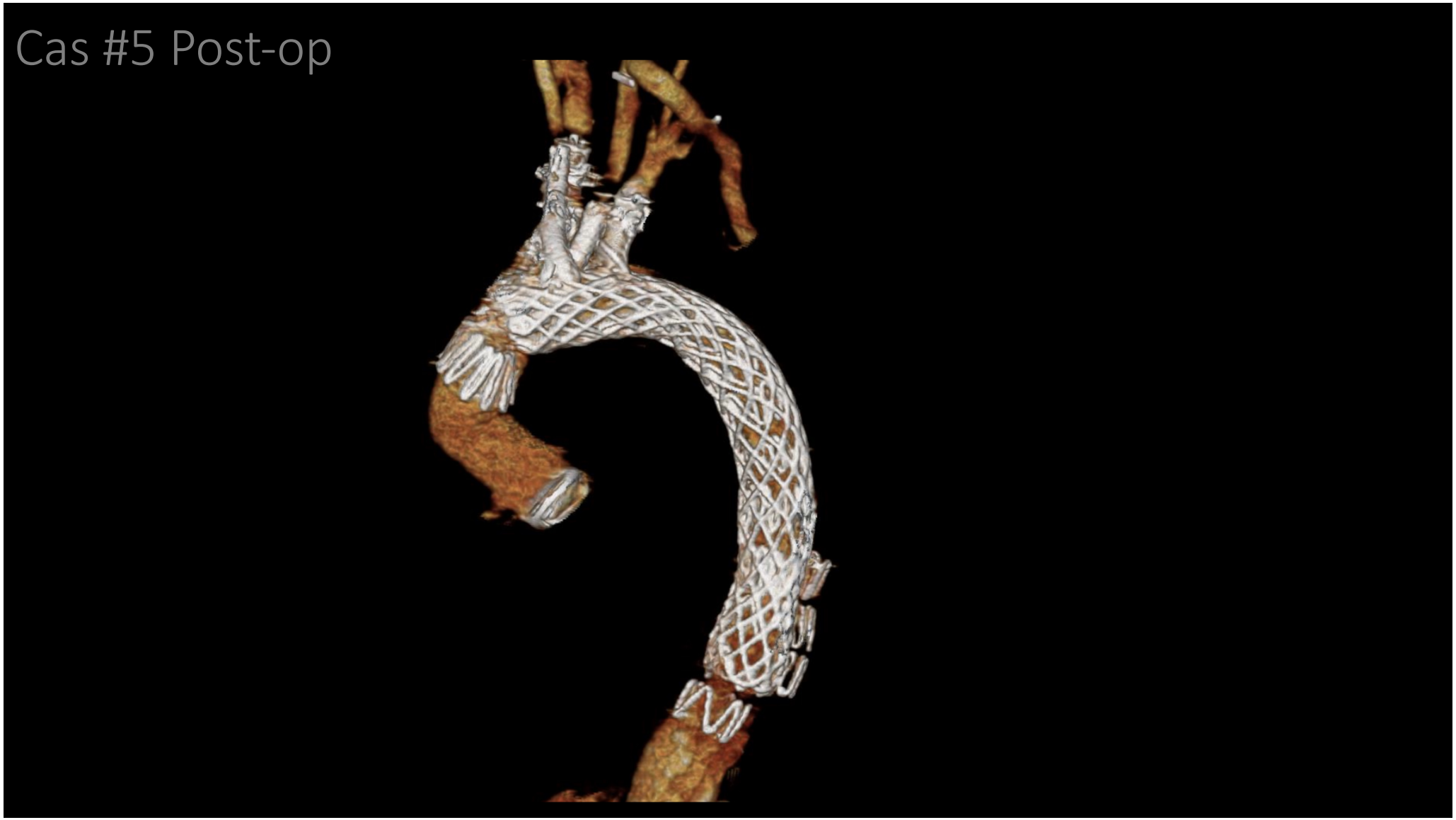
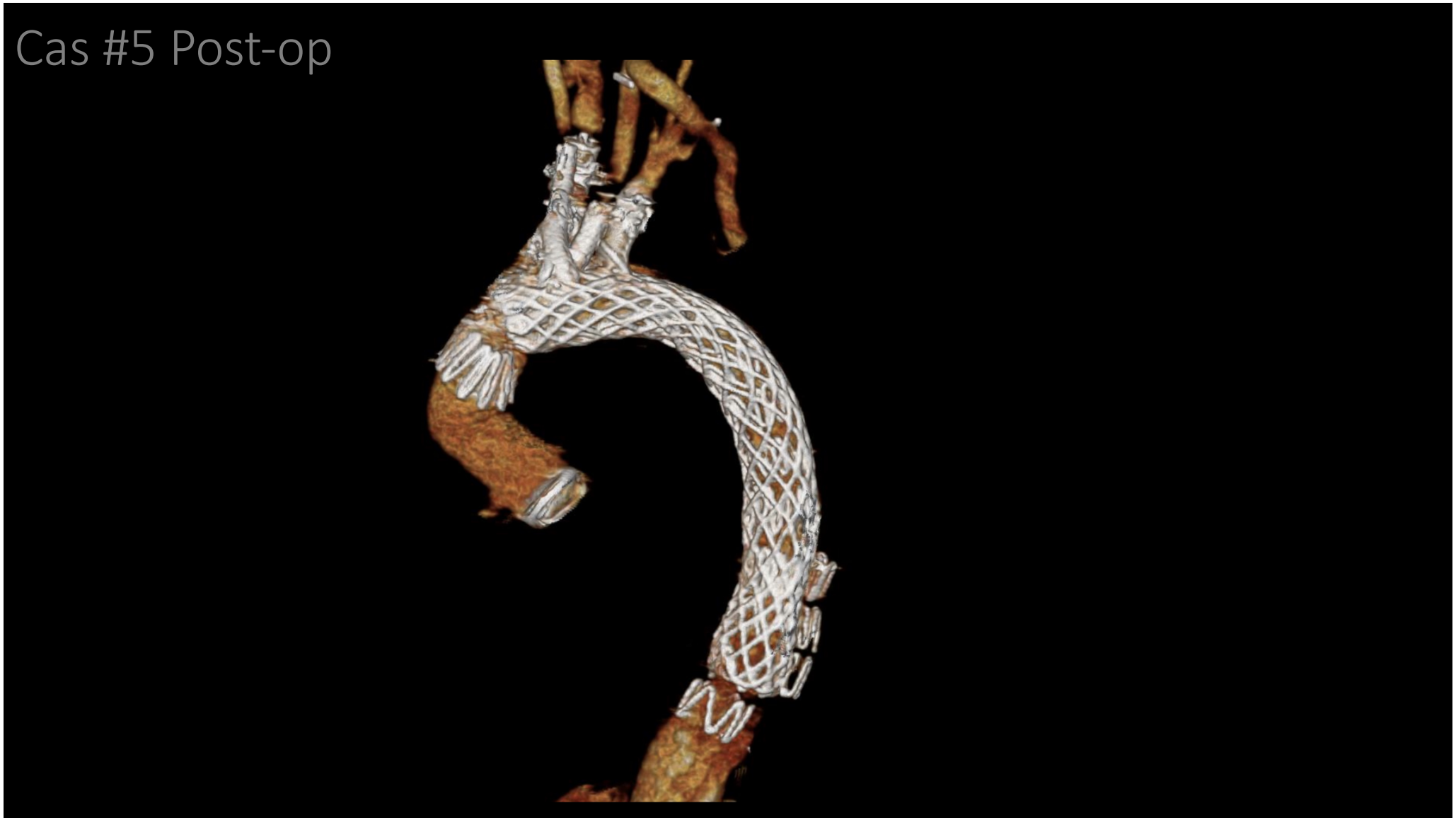
Cas #5 Post-op

Cas #5 Post-op

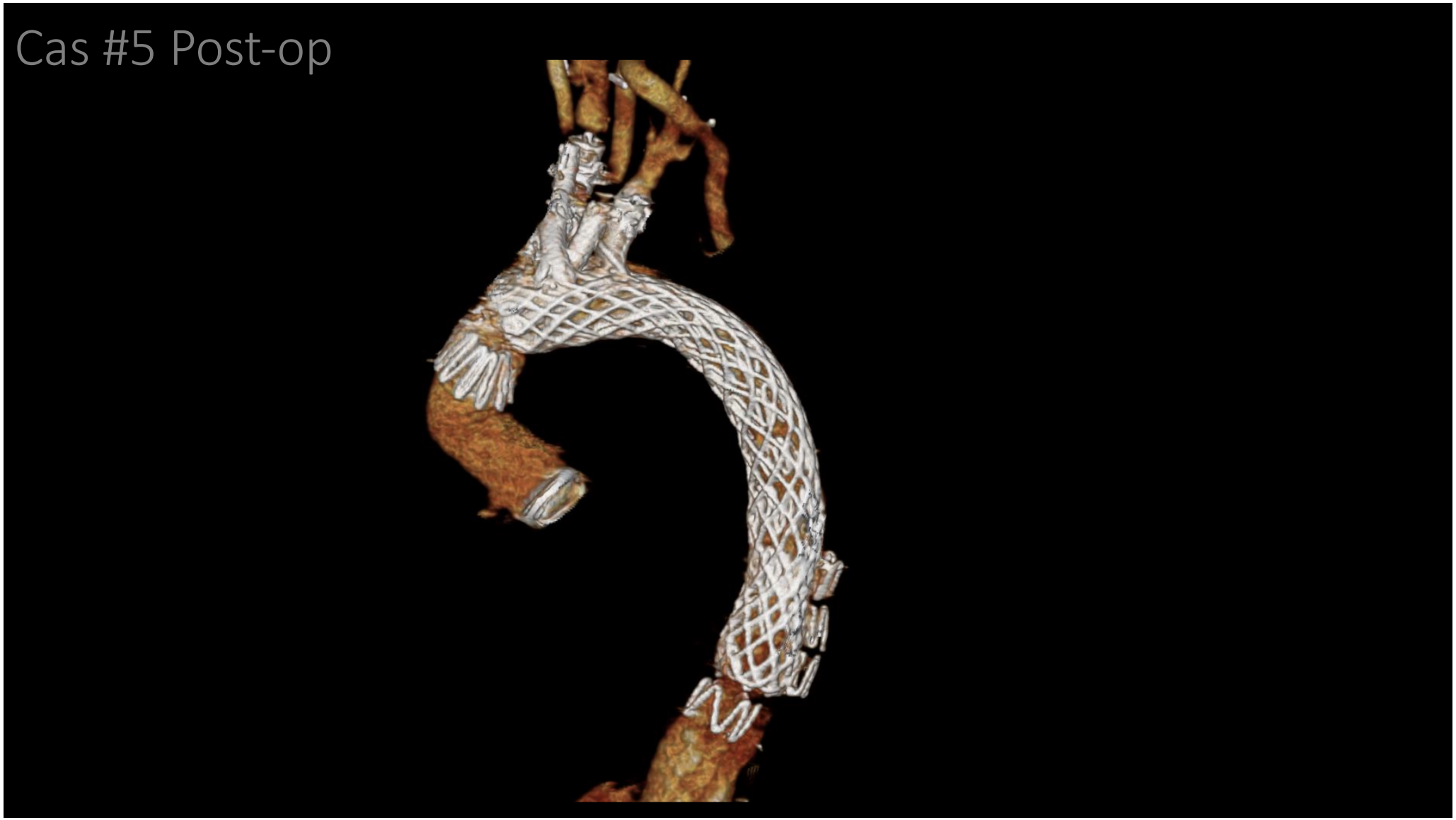
Cas #5 Post-op



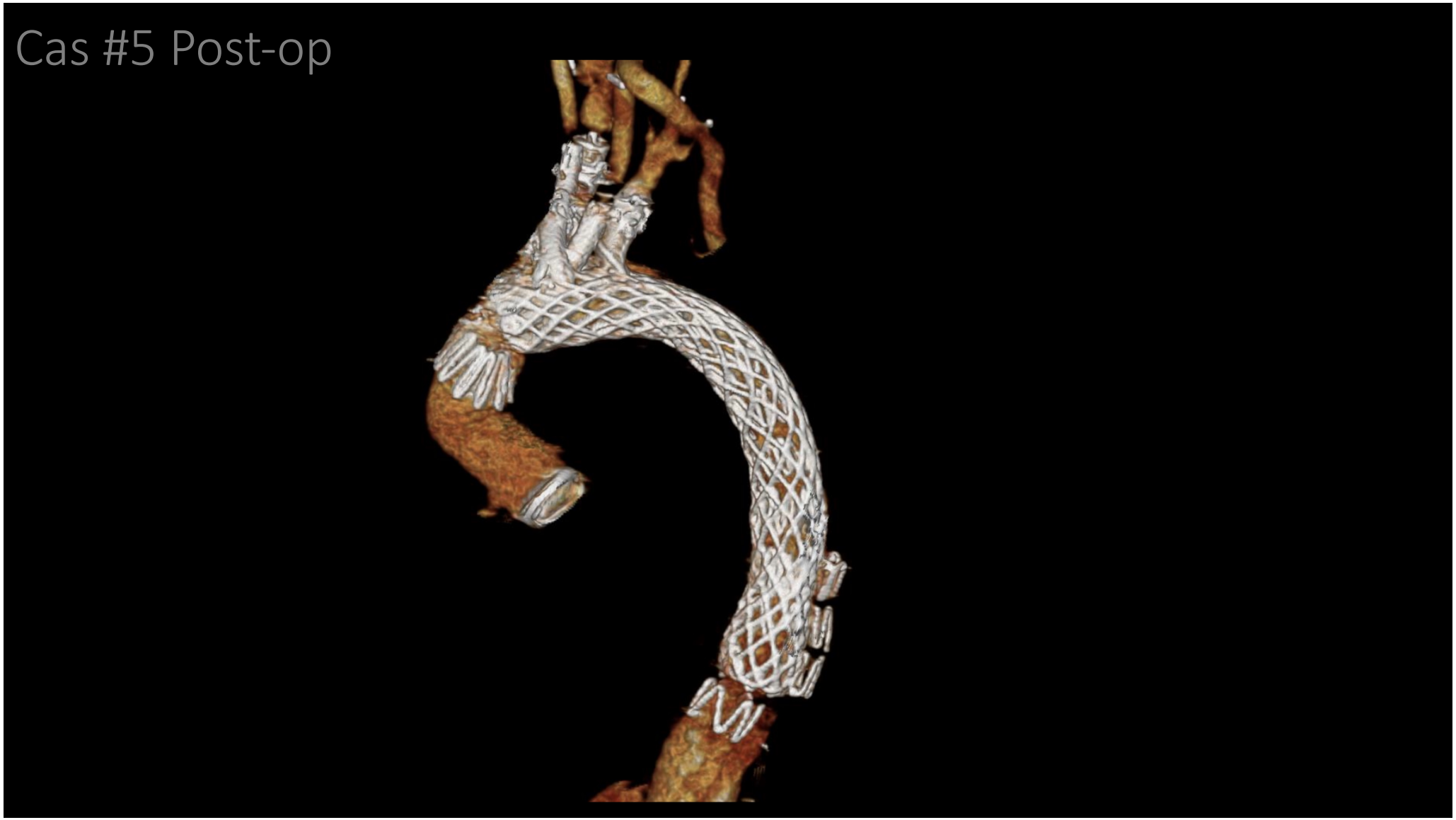
Cas #5 Post-op



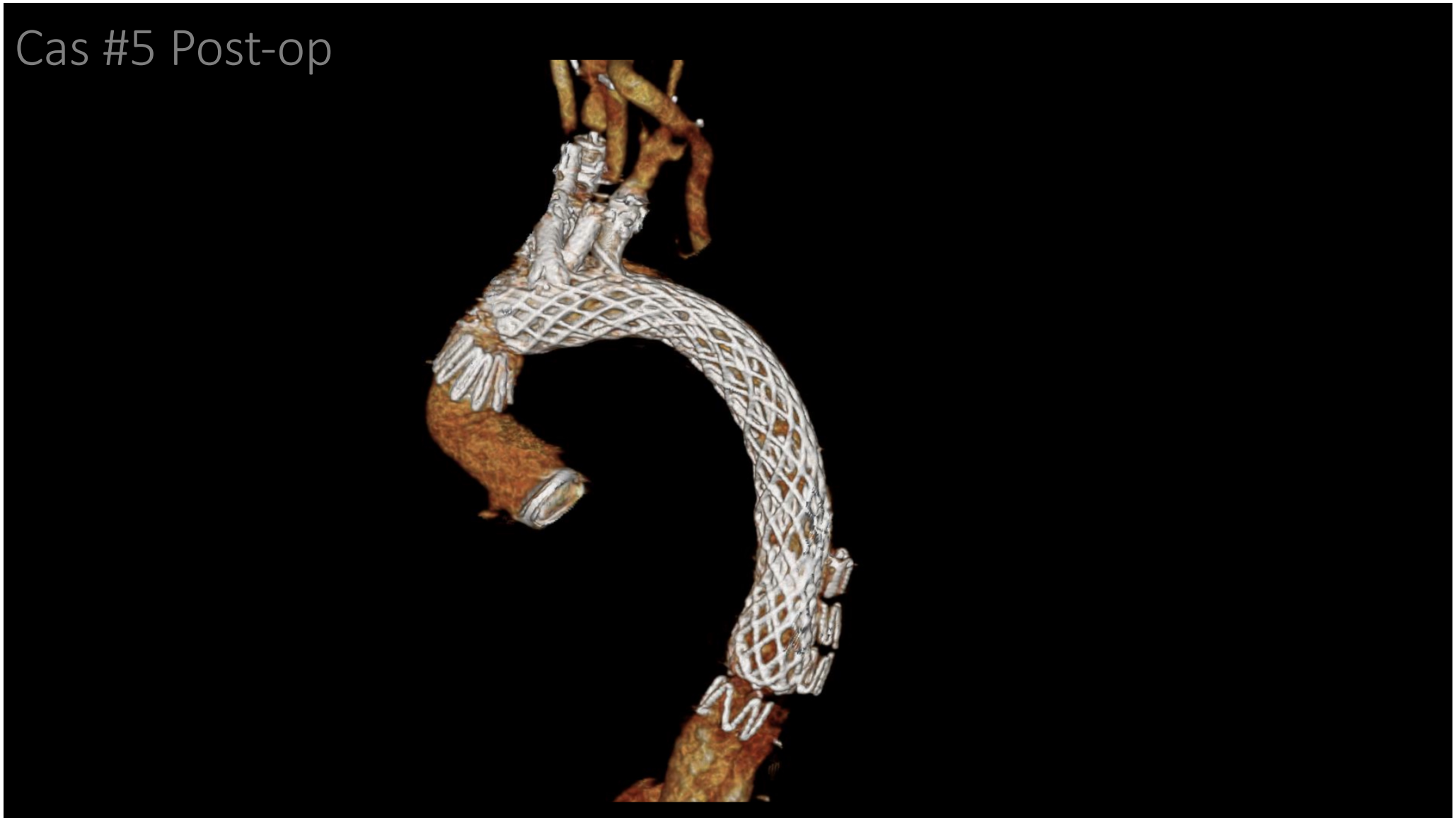
Cas #5 Post-op



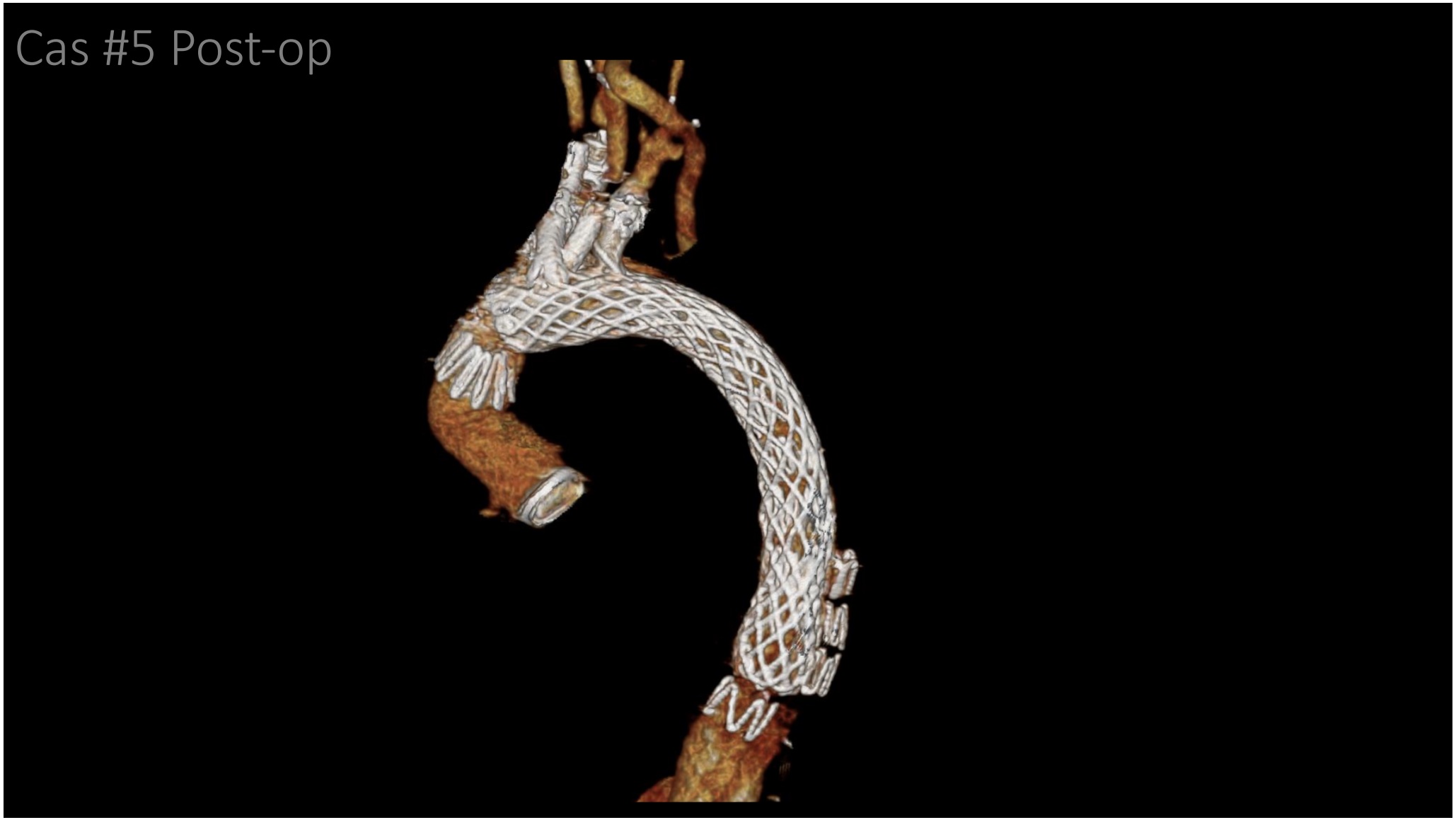
Cas #5 Post-op



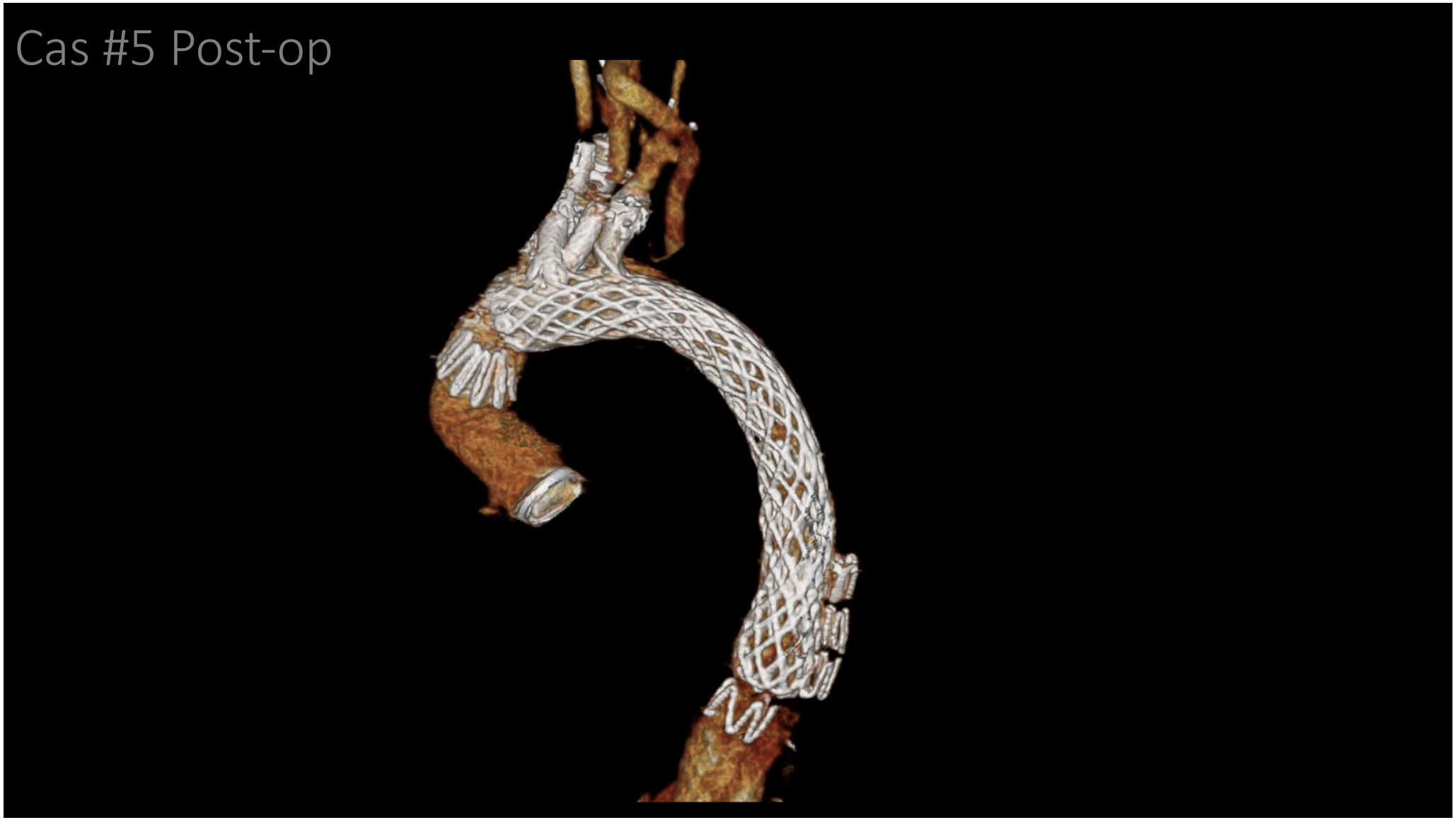
Cas #5 Post-op



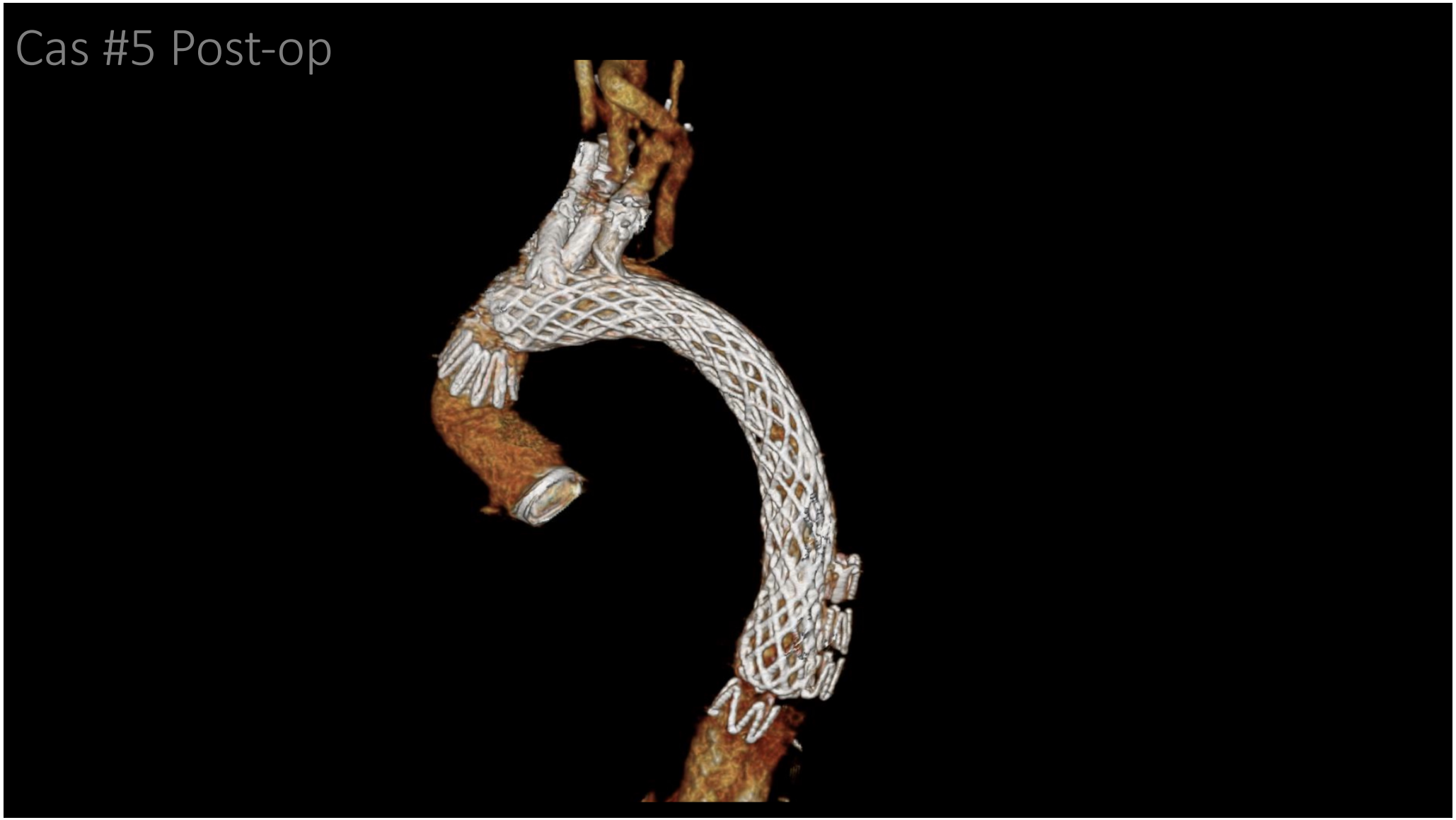
Cas #5 Post-op



Cas #5 Post-op



Cas #5 Post-op

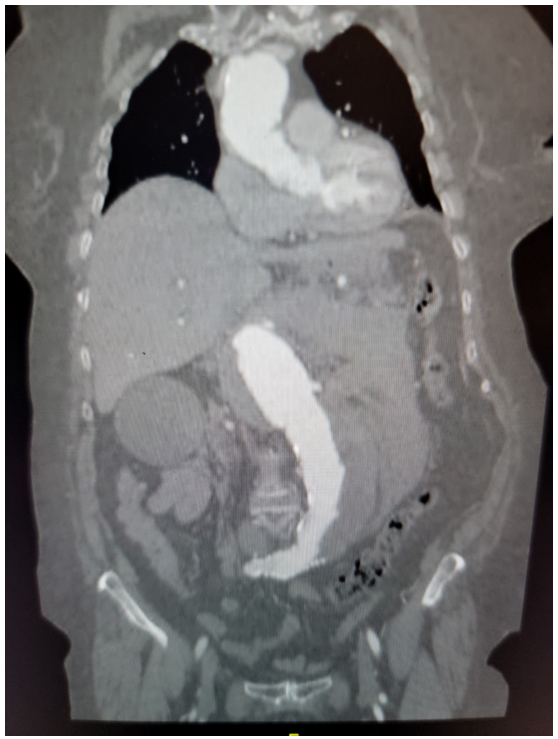


OPTIONS THÉRAPEUTIQUES

CAS D'URGENCE

Introduction

-**Techniques endovasculaires** dans le traitement des anévrismes complexes/étendus



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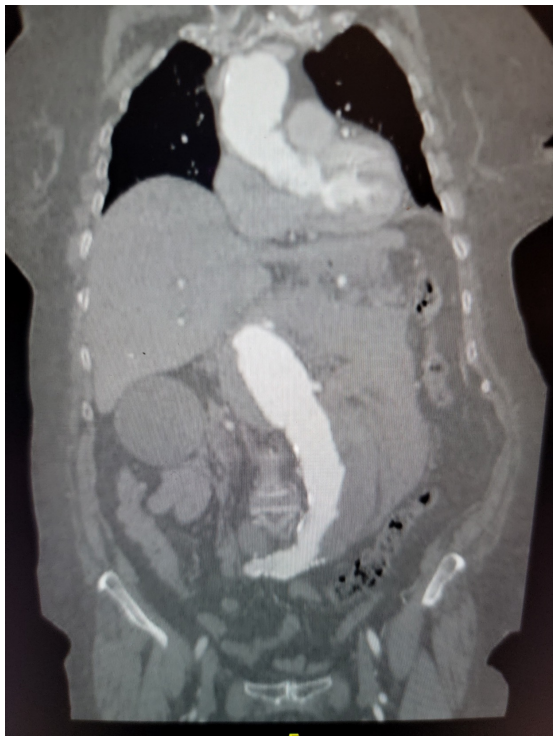

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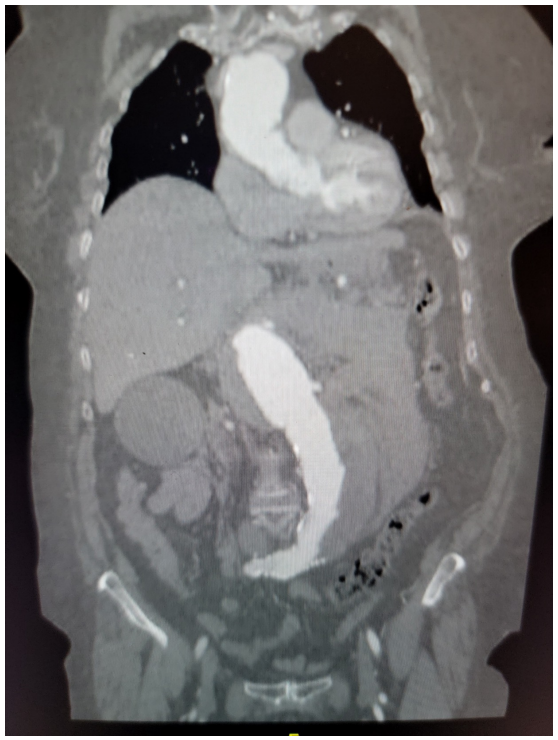

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CONCLUSION

Conclusion

- Dès le diagnostic d'un anévrisme aortique, le patient devrait être référé à un chirurgien vasculaire

- Pour les anévrismes complexes, le patient devrait être pris en charge dans un centre aortique

- Panoplies d'interventions disponibles adaptés à la situation clinique et aux comorbidités du patient