ROTATIONAL ATHERECTOMY USING ROTAREX SYSTEM FOR A SUBCLAVIAN ARTERY IN-STENT OCCLUSION

ABOUT A CASE

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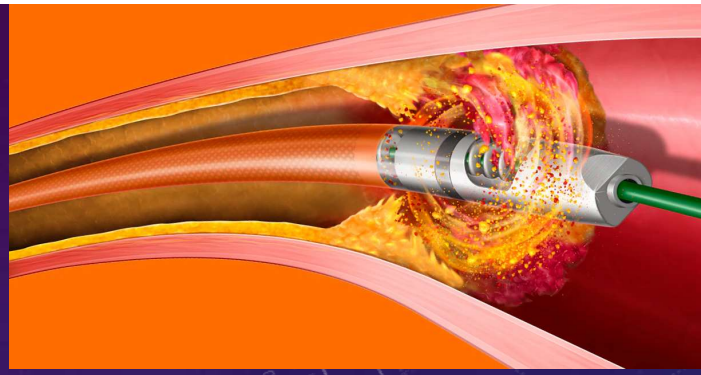
INTRODUCTION

- Rotarex™ = endovacular rotational atherectomy and thrombectomy system
- Two different size options : 6F & 8F (60 & 40.000 rpm)
- Three distinct mechanisms of action
  1. Modifying beveled tip
  2. Rotating abrading vortex
  3. Continuous active aspiration

INTRODUCTION



- Known for several years for anterograde treatment of lower limb occlusive lesions :
  - ✓ Native or artifical bypass
  - ✓ Stent grafts
  - ✓ In-stent restenosis
- Few cases described of retrograde for the upper limbs…

➔ Safe and effective to treat iliac and femoro-popliteal arteries (in-stent occlusions) : what about subclavian artery ?

Laganà D, Carrafiello G, Lumia D, Fontana F, Mangini M, Vizzari FA, Piffaretti G, Fugazzola C. Recanalisation of thrombotic arterial occlusions with rotational thrombectomy. *Radiol Med*. 2011 Sep;116(6):932-44. English, Italian. doi: 10.1007/s11547-010-0611-3. Epub 2010 Dec 3. PMID: 21311991.

CASE PRESENTATION

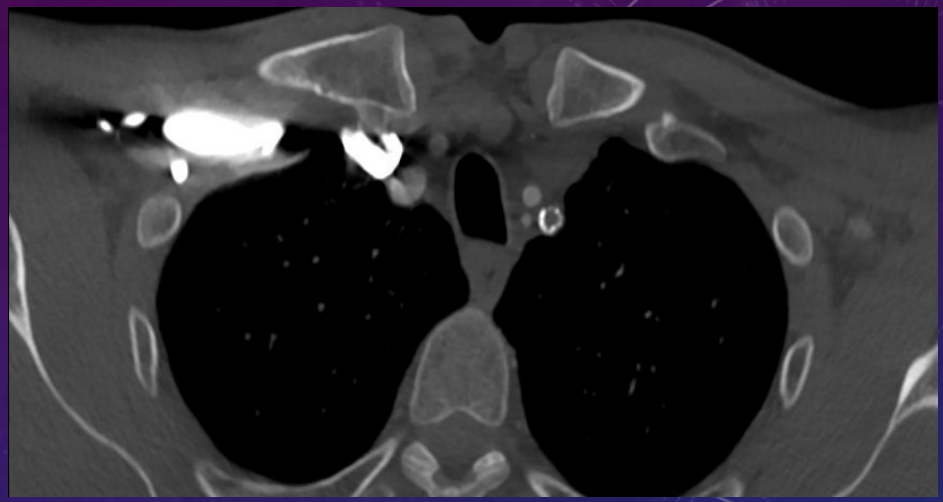
- 57-year-old man
- Guitar player
- Smoking, dyslipidemia

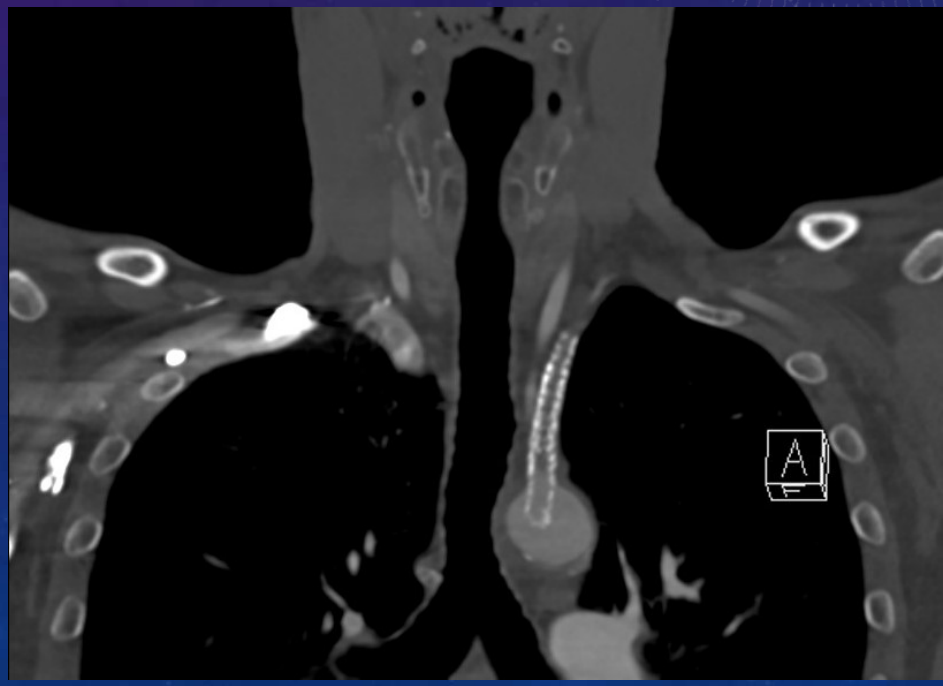
- Pain and functional impotence (left upper limb weakness)
- Recurrent occlusive disease of his left subclavian artery
  - ✓ bare metal stent in July 2020
  - ✓ covered stenting for ISR in September 2022

CASE PRESENTATION

- November 2022 : recurrence of symptoms !
- Computed tomographic angiography : Thrombosis of the prevertebral subclavian artery stents

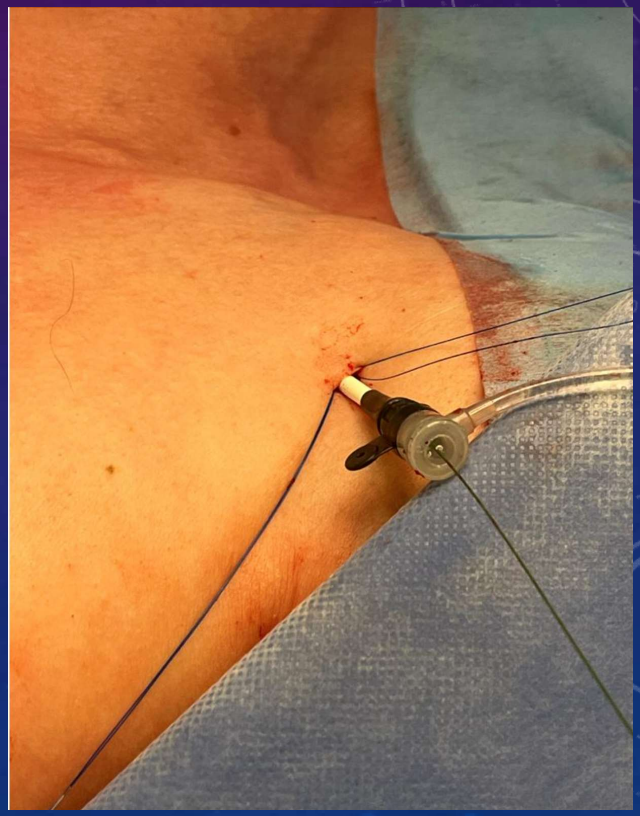
➔ what to do ?





CASE PRESENTATION

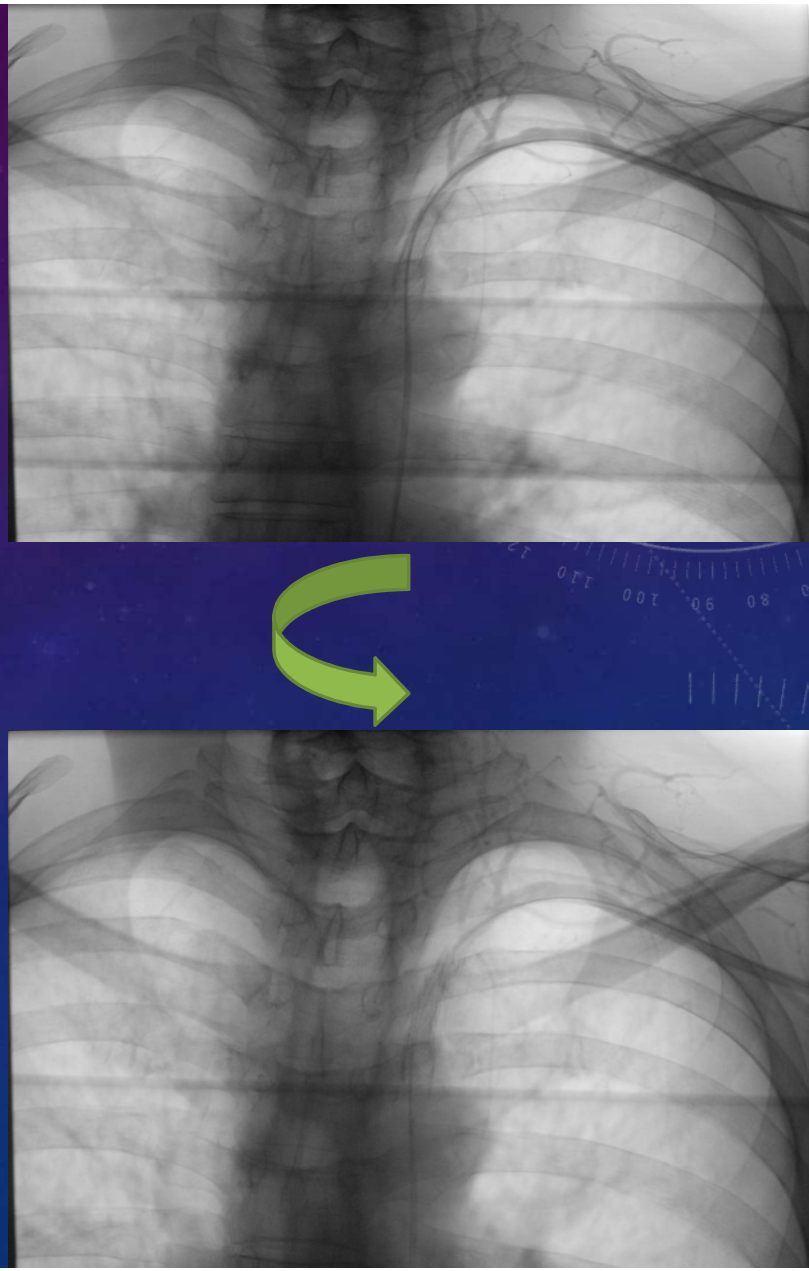
- General anesthesia
- Using Rotarex™ endovascular rotational atherectomy and thrombectomy system
  - ➢ Retrograde approach
    - ✓ US control
    - ✓ axillary artery
  - ➢ Prior preclosing
  - ➢ 9 Fr sheath
    - ✓ physiological fluid infusion



CASE PRESENTATION

- Several passages of the Rotarex™ system

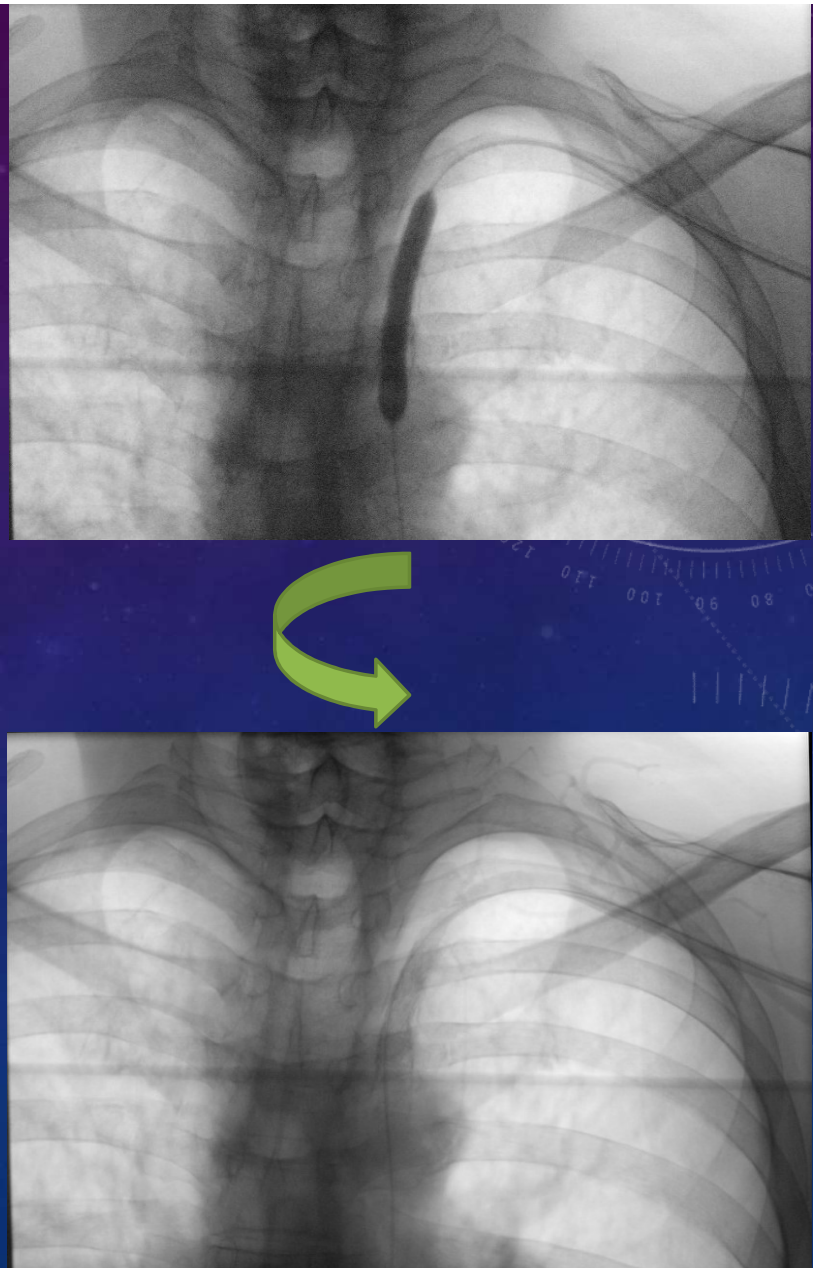
- Angiography :
  - ✓ good iconographic result
  - ✓ improvement of haemodynamic into the arm



CASE PRESENTATION

- Use of drug-eluting balloons (DEB) :
  - ✓ 7 x 60 mm
  - ✓ 8 x 40 mm

- Control angiography : no residual stenosis



CASE PRESENTATION

- No complication
  - ✓ Discharge the day after the intervention
- After three months
  - ✓ No residual symptoms
  - ✓ Duplex scan : stent patency

DISCUSSION

Endovascular VS Surgery ?

- Primary patency rate : better for open surgery at 1-year and 5-year
- 5-year freedom from recurrent symptoms rate : equality between surgery and endovascular
- Immediate complications : endovascular way is less invasive
  - ✓ peripheral nerves injuries : more prevalent with open surgery

Angioplasty +/- stenting ?

- Angioplasty with stenting > angioplasty alone
  - ✓ primary patency rate at 1-year 89% VS 79%

- Lichtenberg M. Percutaneous mechanical thrombectomy by means of rotational thrombectomy. Current study situation. *Med Klin (Munich)*. 2010 Oct;105(10):705-10. German. doi: 10.1007/s00063-010-1122-0. Epub 2010 Oct 28. PMID: 20981589.
- Sixt S, Rastan A, Schwarzwälder U, Bürgelin K, Noory E, Schwarz T, Beschorner U, Frank U, Müller C, Hauk M, Leppanen O, Hauswald K, Brantner R, Nazary T, Neumann FJ, Zeller T. Results after balloon angioplasty or stenting of atherosclerotic subclavian artery obstruction. *Catheter Cardiovasc Interv*. 2009 Feb 15;73(3):395-403. doi:

DISCUSSION

- Rotarex™ device is safe and effective for in-stent occlusions in the lower limbs arteries

- one case report published in 2014 about Rotarex™ device for subclavian artery in-stent occlusion
  - ✓ 51-year-old woman
  - ✓ Occlusions of left subclavian artery stent and left carotid-subclavian bypass
  - ✓ Anterograde usage of Rotarex™ device followed by DCB angioplasty ➔ restoration of arterial flow

- Liao CJ, Song SH, Li T, Zhang Y, Zhang W. Combination of rotarex thrombectomy and drug-coated balloon for the treatment of femoropopliteal artery in-stent restenosis. *Ann Vasc Surg.* 2019;60:301-7. 10.1016/j.avsg.2019.02.018
- Silingardi R, Lauricella A, Cataldi V, Njila MK, Coppi G. Mechanical thrombectomy in proximal subclavian artery in-stent occlusion. *Cardiovasc Interv Ther.* 2014 Apr;29(2):140-5. doi: 10.1007/s12928-013-0199-3. Epub 2013 Aug 13. PMID: 23943249.

DISCUSSION

- The occluded stents located at the proximal part of the subclavian artery ➔ retrograde approach
- The size of the device was 8 French ➔ puncture of axillary artery (not the brachial or radial arteries)
- Limitations of our presentation :
  - ✓ only case report
  - ✓ follow up very short

CONCLUSIONS

Rotarex™ for subclavian artery in-stent occlusion :

- feasible
- safe
- percutaneous approach
- anterograde or retrograde way

QUESTIONS ?

REFERENCES

- https://www.bd.com/en-us/products-and-solutions/products/product-families/rotarex-rotational-excisional-atherectomy-system
- https://reussirsonccna.fr/ios-pour-les-nuls-et-les-experts-le-point-dinterrogation/
- https://www.scienceofpeople.com/21-questions-game/