



UNIVERSITÀ DEGLI STUDI DI TORINO
Scuola di Medicina e Chirurgia
Dipartimento di Scienze chirurgiche
Sezione di Radiodiagnostica

Azienda Ospedaliera
Città della Salute e della Scienza di Torino
Dipartimento di Diagnostica per Immagini e Radioterapia
Radiologia Universitaria



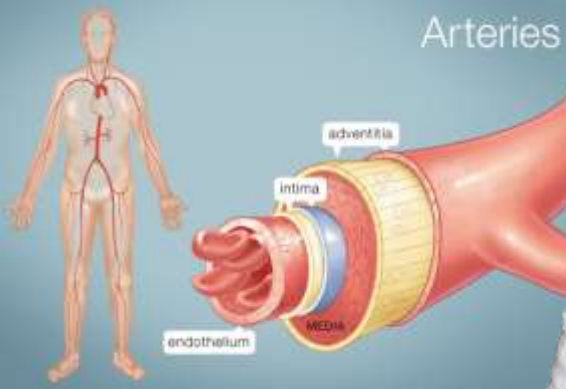
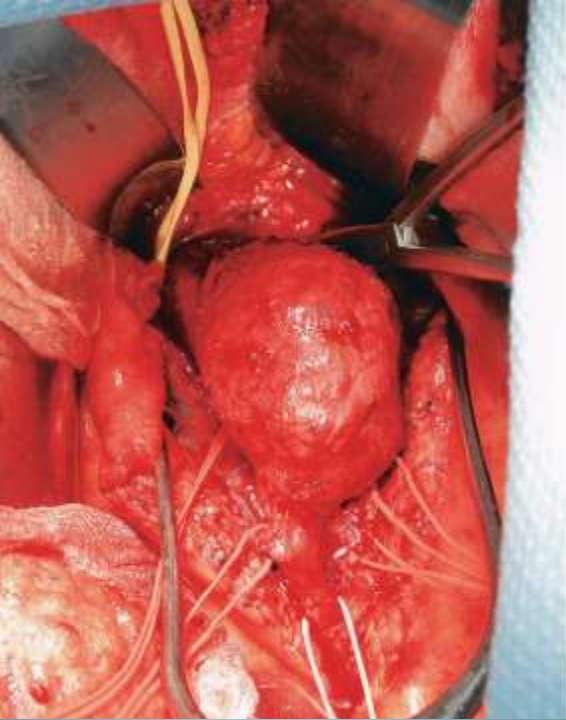
Direttore: Prof. Giovanni Gandini

DIAGNOSTICA per IMMAGINI nelle VASCULITI SISTEMICHE

Giovanni Gandini

Maria Carla Cassinis, Marco Calandri

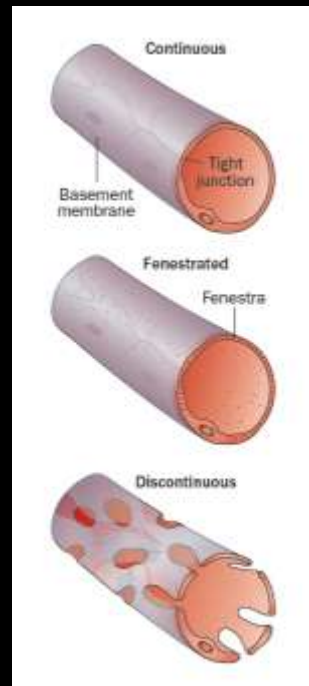




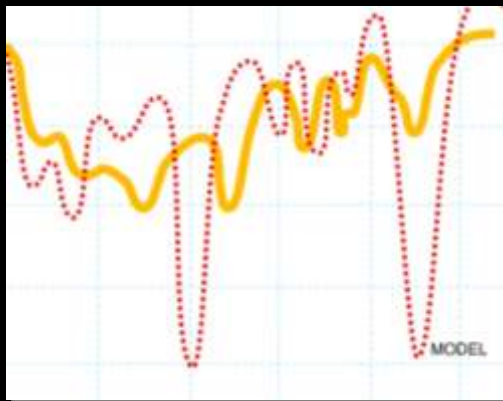
Non solo condutture che si ostruiscono ma...

Veri e propri organi...

- Morfologia delle cellule endoteliali
- Giunzioni intercellulari
- Matrice subendoteliale
- Periciti



- Proteine di membrana (*tool like receptor, molecole di adesione...*)
- Componenti della matrice (*collagene, laminina, fibronectina...*)



...con caratteristiche e struttura variabili a seconda delle pressioni e flussi a cui i vasi sono sottoposti e del tipo di parenchima con cui si interfacciano

Nat Rev Rheumatol. 2014 Aug;10(8):454-62. doi: 10.1038/nrnheum.2014.69. Epub 2014 Jun 17.

Vasculitis: determinants of disease patterns.

Hoffman GS¹, Calabrese LH¹.

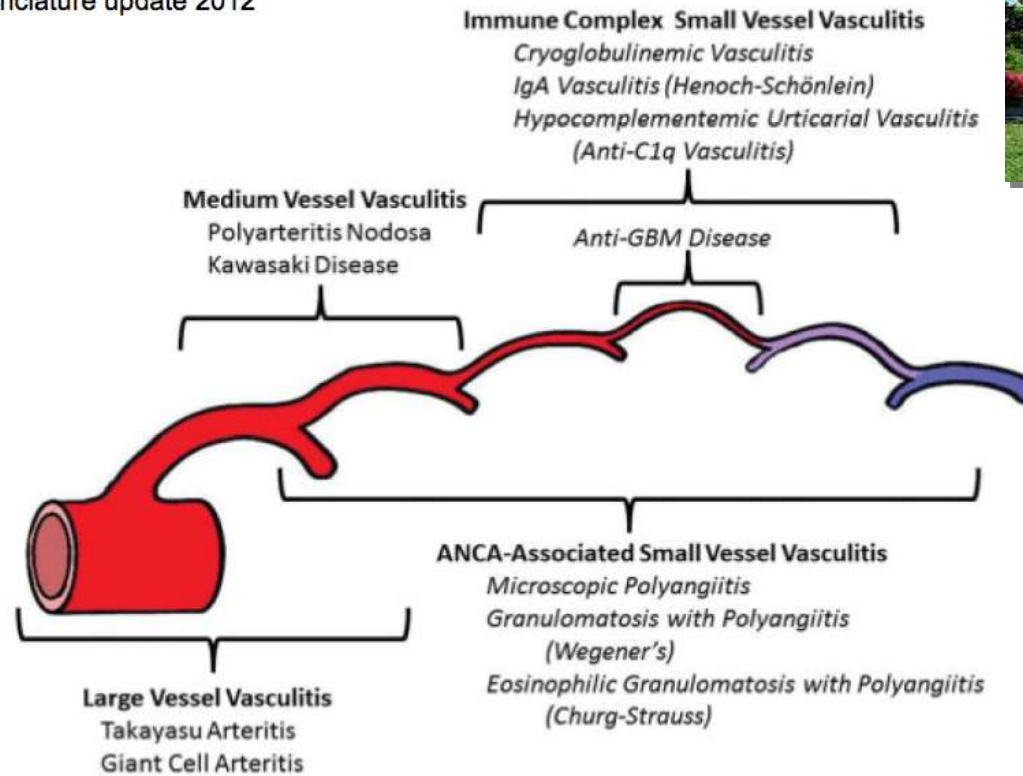
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¹Department of Rheumatic and Immunologic Diseases, A50, 9500 Euclid Avenue, Lerner College of Medicine, Cleveland Clinic, Cleveland, OH 44195, USA.

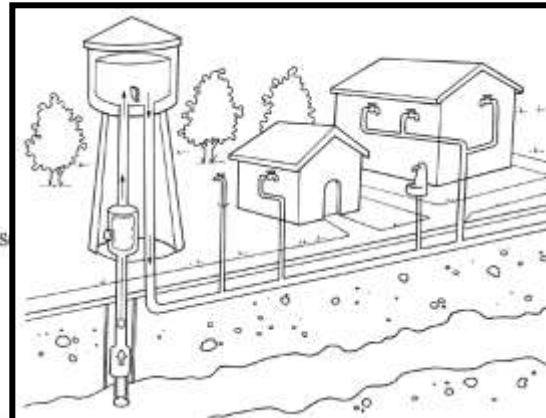
nature
REVIEWS
RHEUMATOLOGY

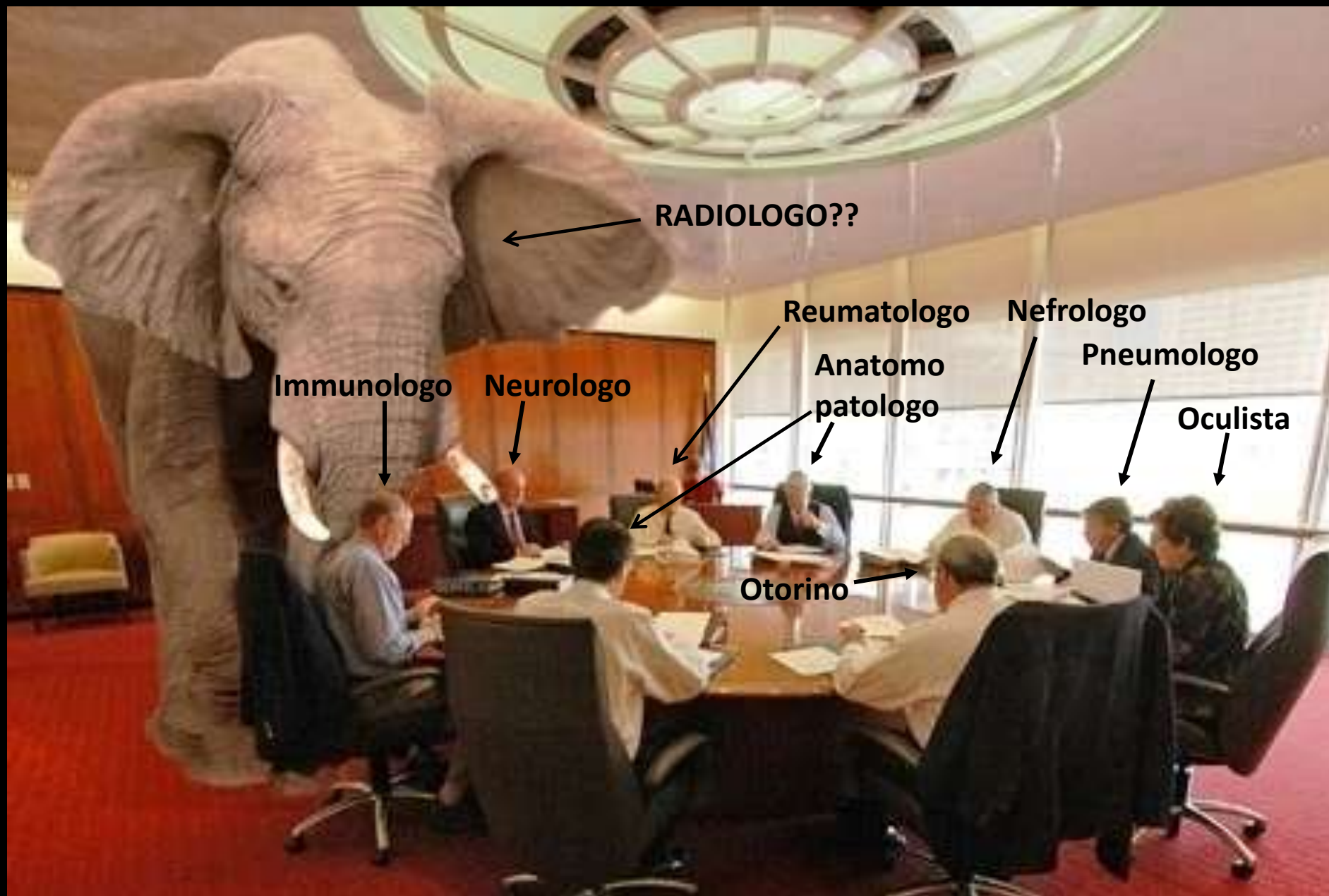
Classification of Vasculitis

Chapel Hill Consensus Criteria
Nomenclature update 2012



Large v
Taka
Gian
Mediun
Polya
Kawa
Small v
Antir
(
Mi
Gr
Eo
(
Immu
An
Cr
Ig/
Hy
Variabl
Behç
Coga
Single-
Cutai
Cutai
Primi
Is
O
Vasc
L
R
Sa
O
Vasc
H
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D
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O





RADIOLOGO??

Immunologo

Neurologo

Reumatologo

Nefrologo

**Anatomo
patologo**

Pneumologo

Oculista

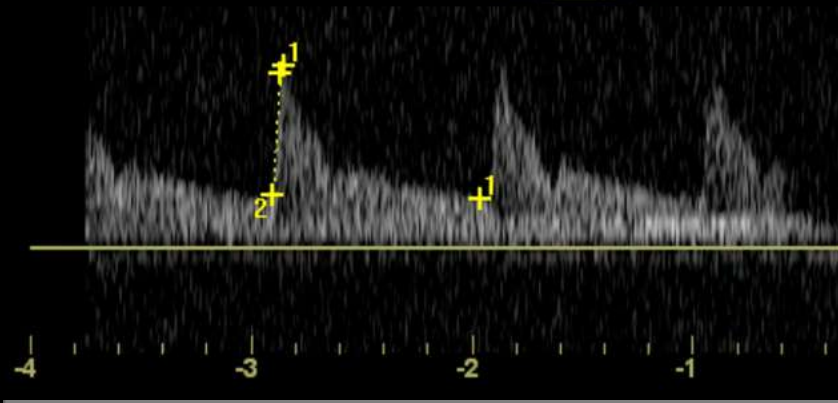
Otorino



Eco-Color-Doppler US

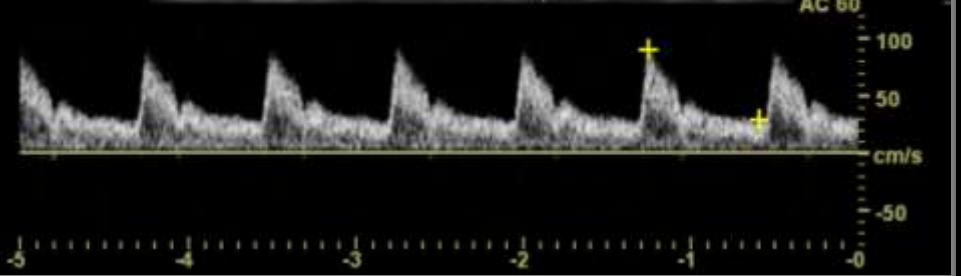
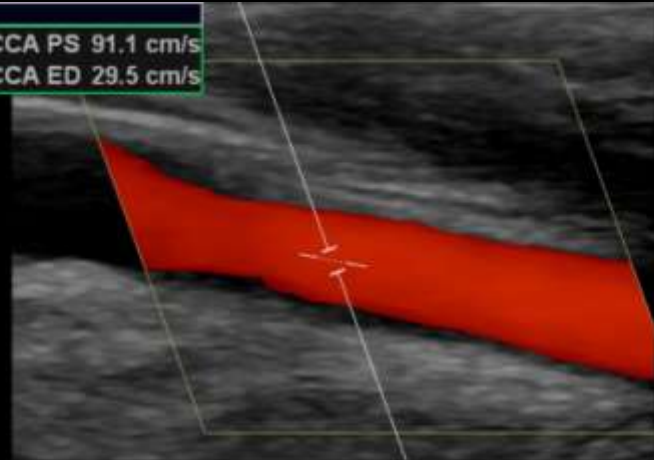
1 Vs 55.11 cm/s
Vd 14.75 cm/s
RI 0.73
2 DELTA T 34.48 ms

-11 cm/s RHA

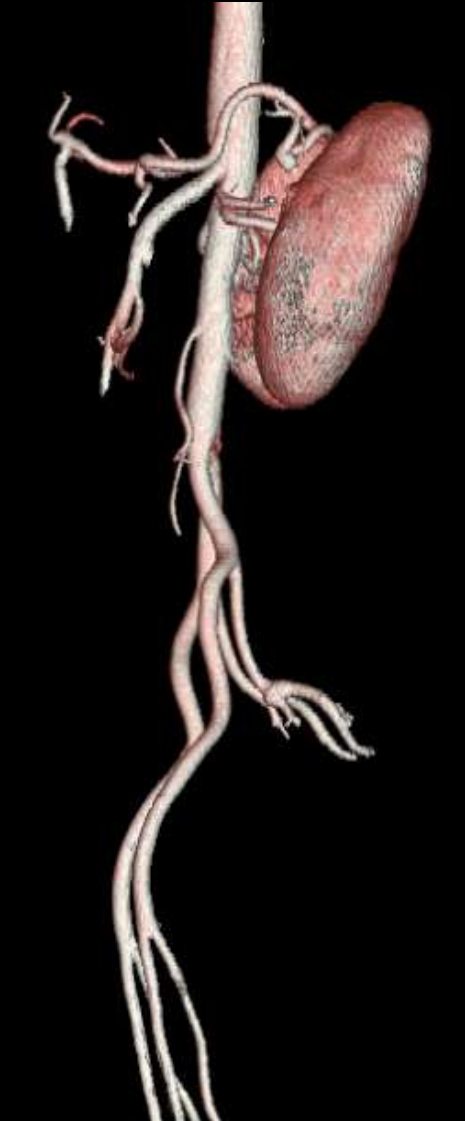
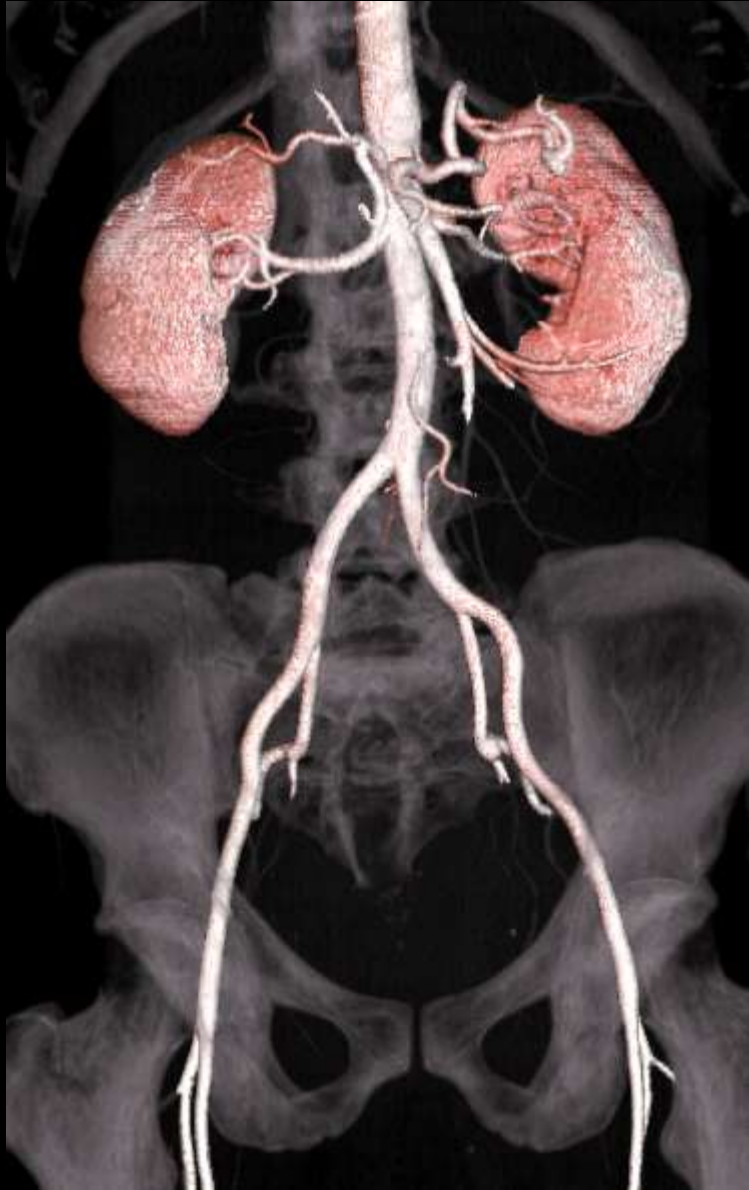


Rt Prox CCA PS 91.1 cm/s
Rt Prox CCA ED 29.5 cm/s

-40 cm/s



Angio -TC



Angio -TC



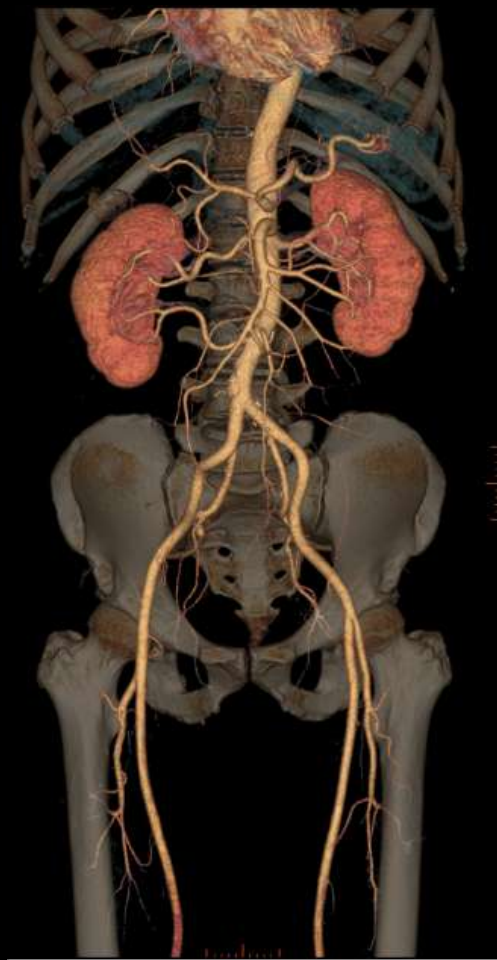
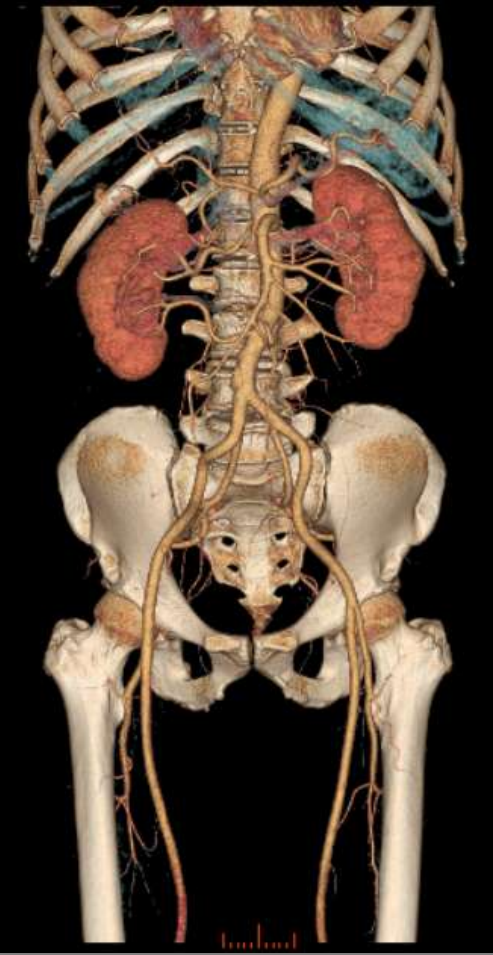


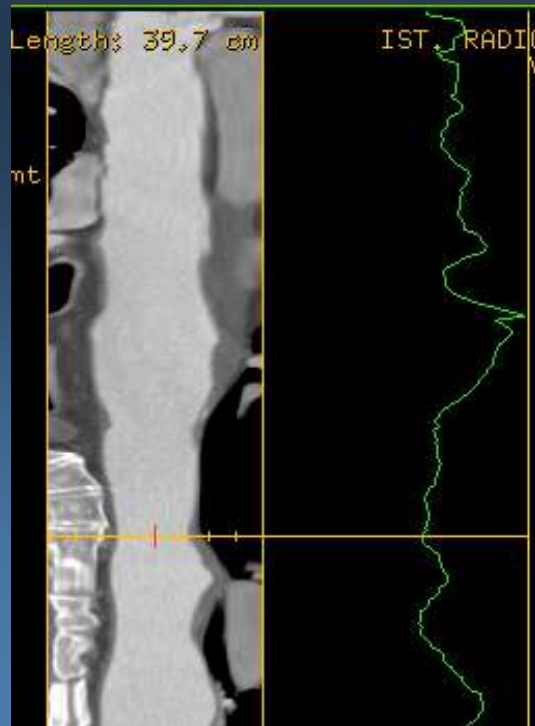
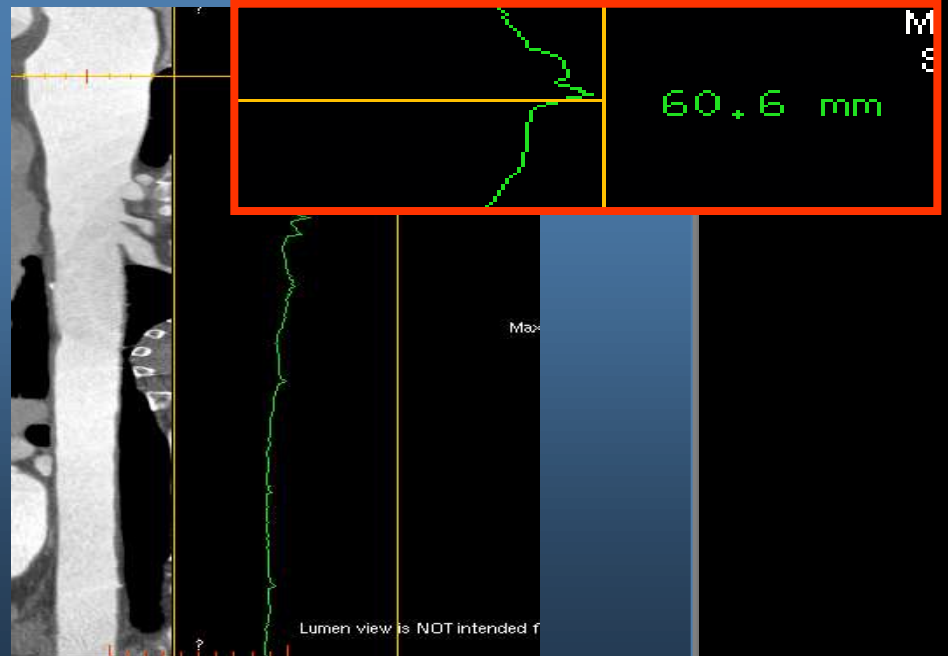
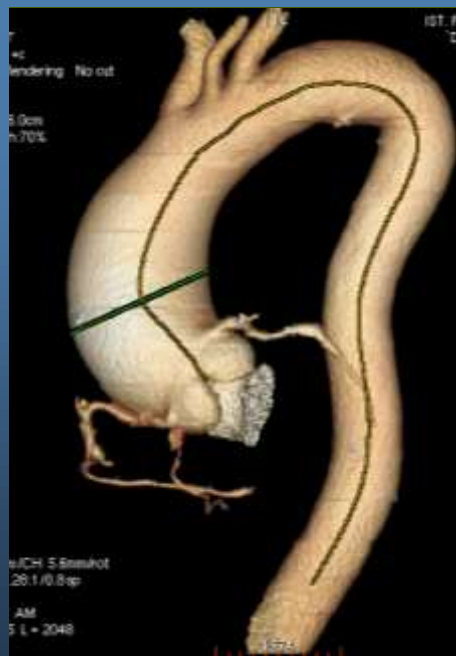
- Generatore con Switch di Kv ultra rapido per la *"Dual-Energy"*
- Detettori *"Gemstone Clarity"* con scintillatore ultrarapido
- 160 mm di *"detector coverage"* con possibilità di acquisizioni Angio-TC assiali
- Velocità di rotazione a 0.28 s
- Sistema iterativo *"Asir-V"*

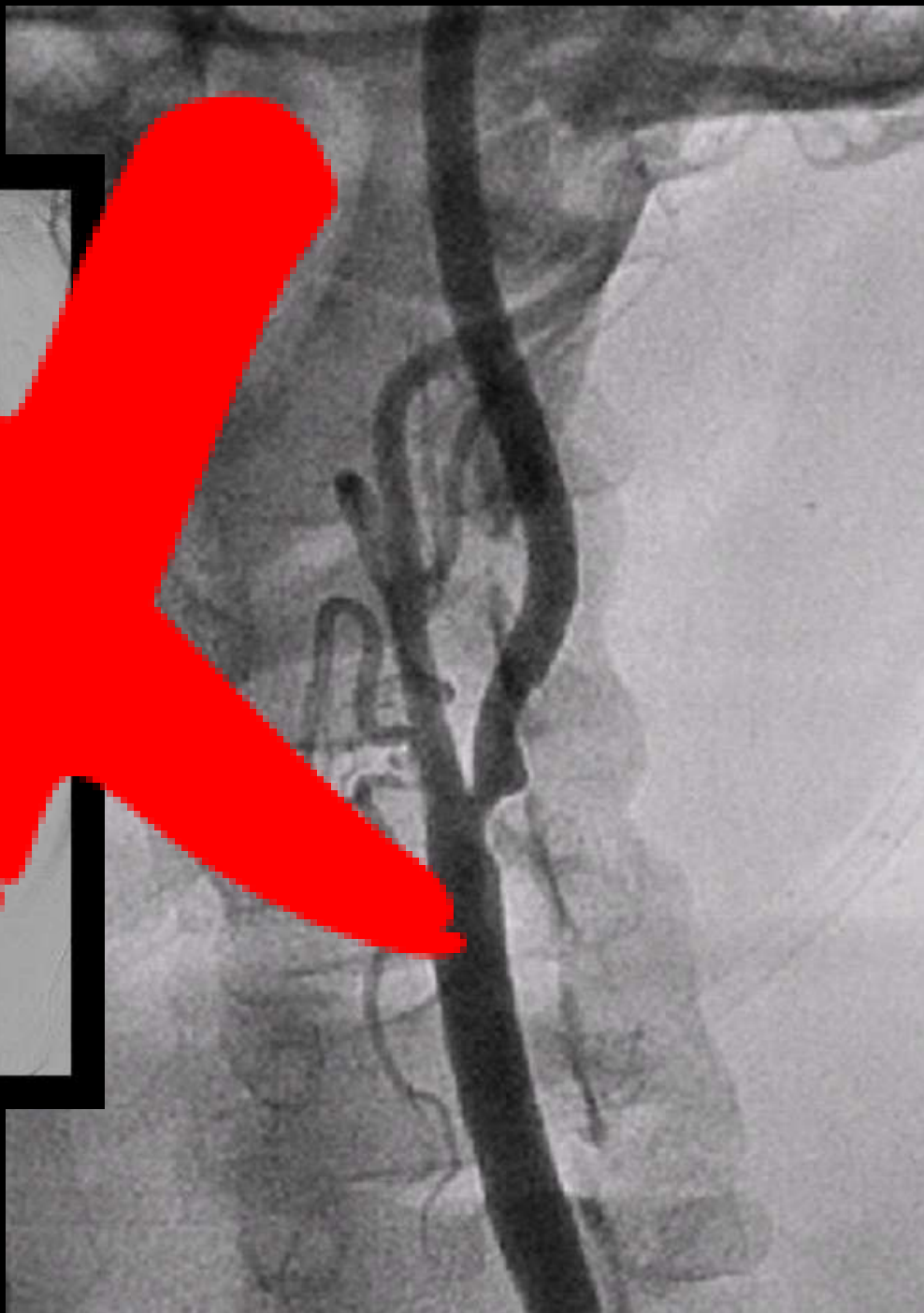
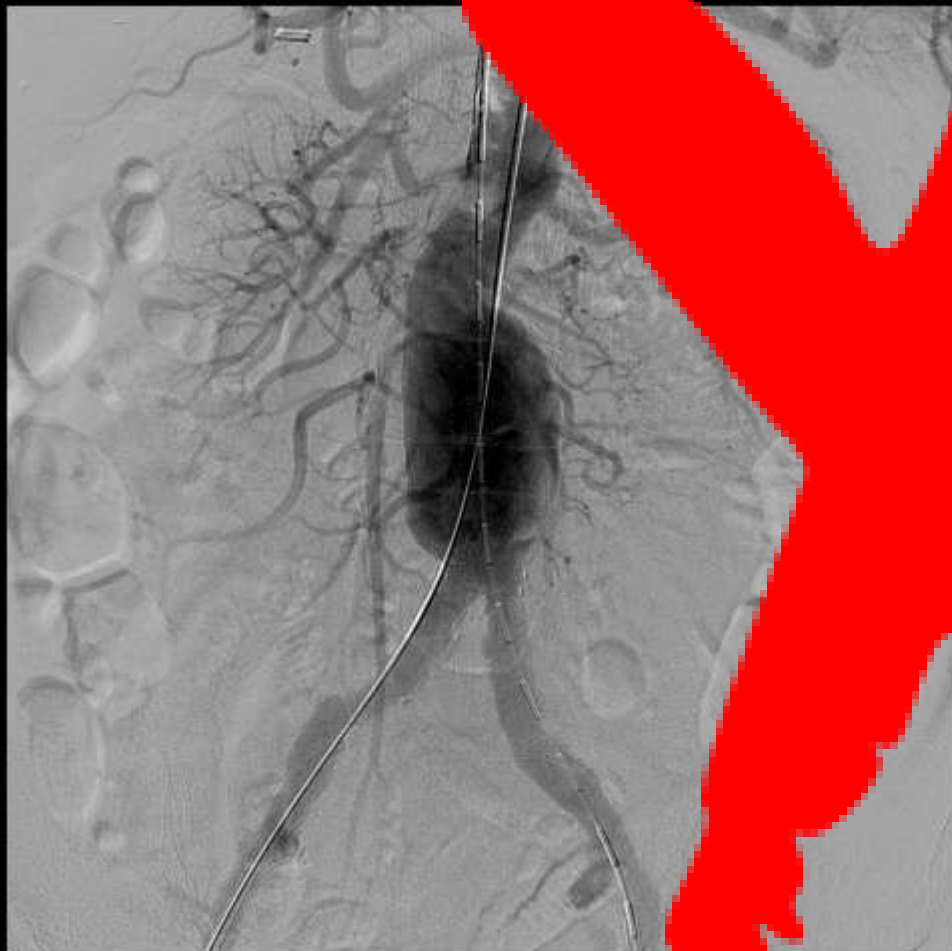


Riduzione della dose oltre il 70% !!!

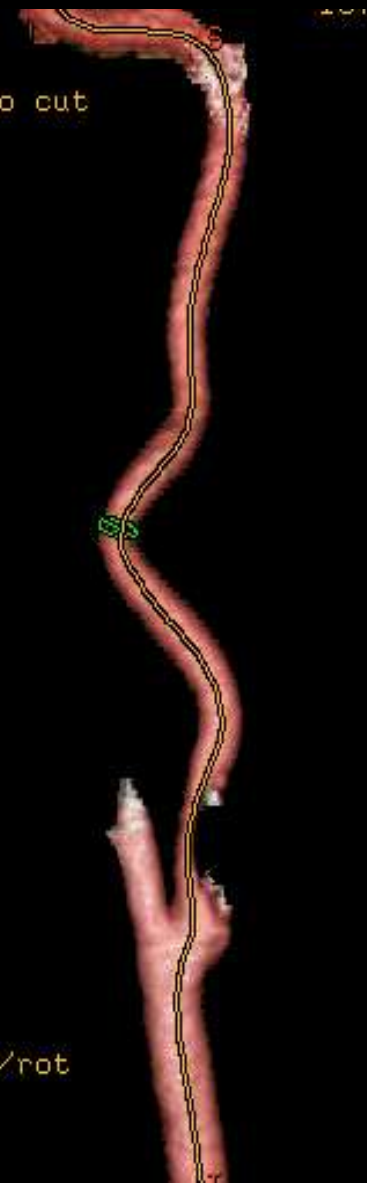
Angio -TC







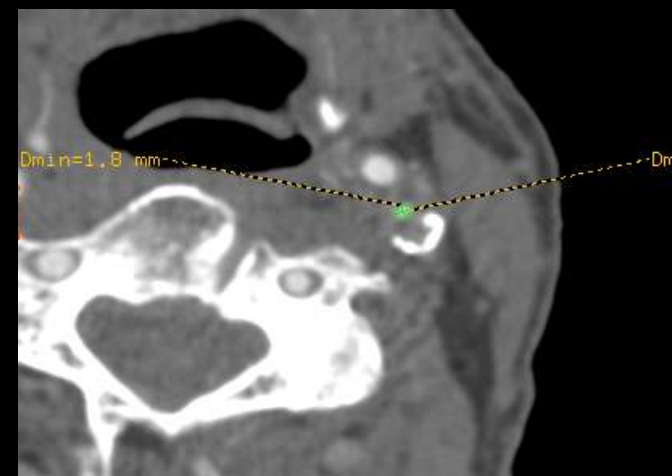
Vessel Analysis



Nome punto	Medio	Min	Max	Area
Sten. St. / Ref.	-53.2 %	-25.7 %	-80.7 %	-135.8 %
Sten. End / Ref.	-2.0 %	+2.6 %	+0.0 %	-4.1 %
Stenosis / Ref.	+57.7 %	+60.2 %	+56.6 %	+82.1 %

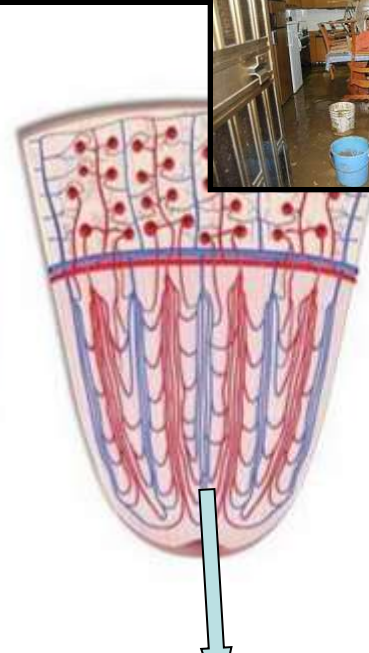
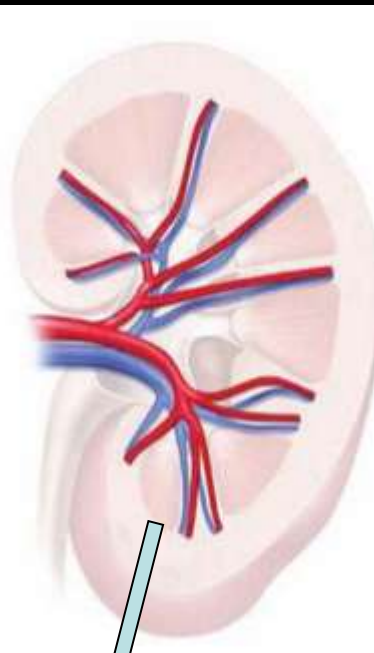
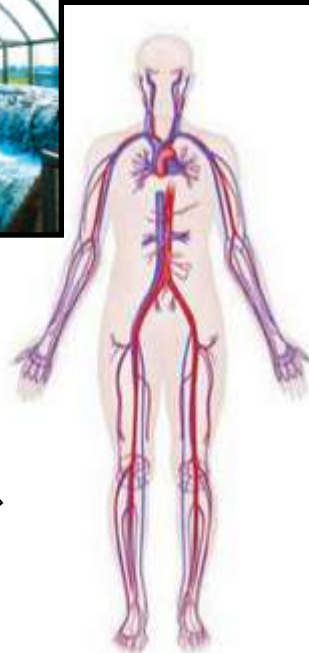
70%

Calcolo % di stenosi



Angio - RM

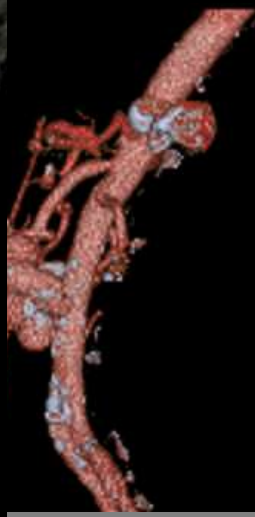
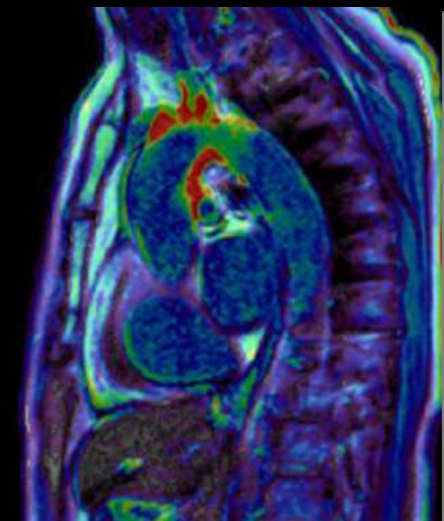




Takayasu

Poliarterite nodosa

Wegener



Takayasu

“Arterite, spesso granulomatosa, che coinvolge l’aorta e i suoi rami principali”

Chapel Hill 2012



- Età < 40 anni, donne, più diffuso nell’est e sud-est asiatico.
- Claudicatio delle estremità
- ↓ PA brachiale (*polsi poco percettibili*)
- Differenza > 10 mmHg tra PA dei due arti sup
- Soffi arteriosi (*succlavia e/o aorta addominale*)
- Caratteristiche del vaso all’imaging: restringimento (*spesso focale, segmentario*) di tratti di aorta e dei suoi rami principali non dovuto a aterosclerosi o displasia fibromuscolare



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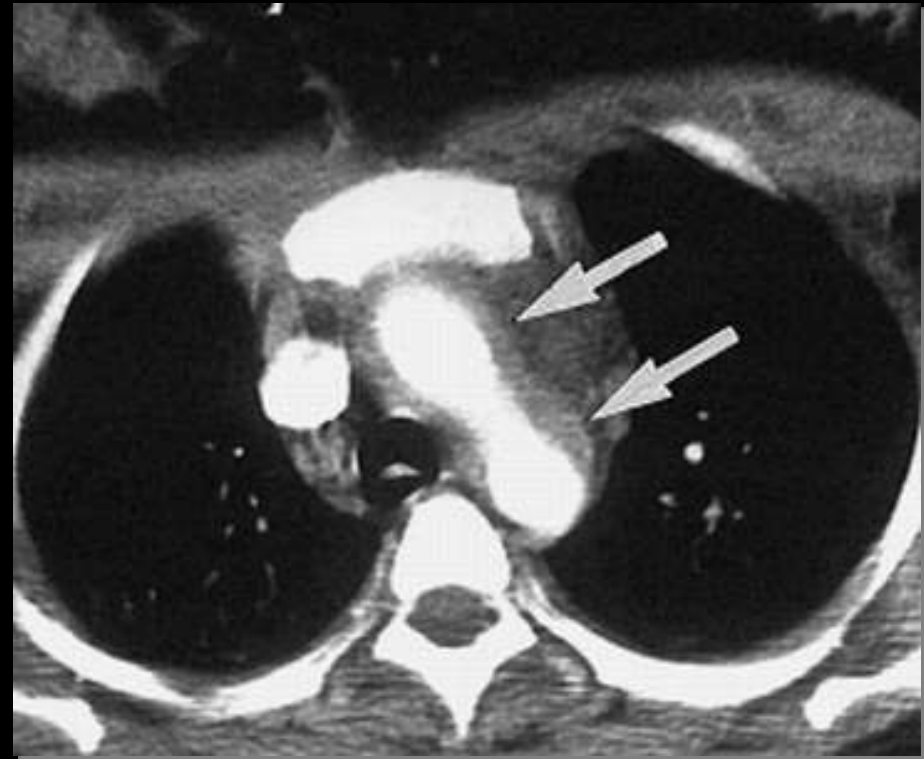
[Int J Cardiol.](#) 2013 Sep 20;168(1):3-10. doi: 10.1016/j.ijcard.2013.01.022. Epub 2013 Feb 13.

Takayasu arteritis revisited: current diagnosis and treatment.

[Isobe M](#)¹.

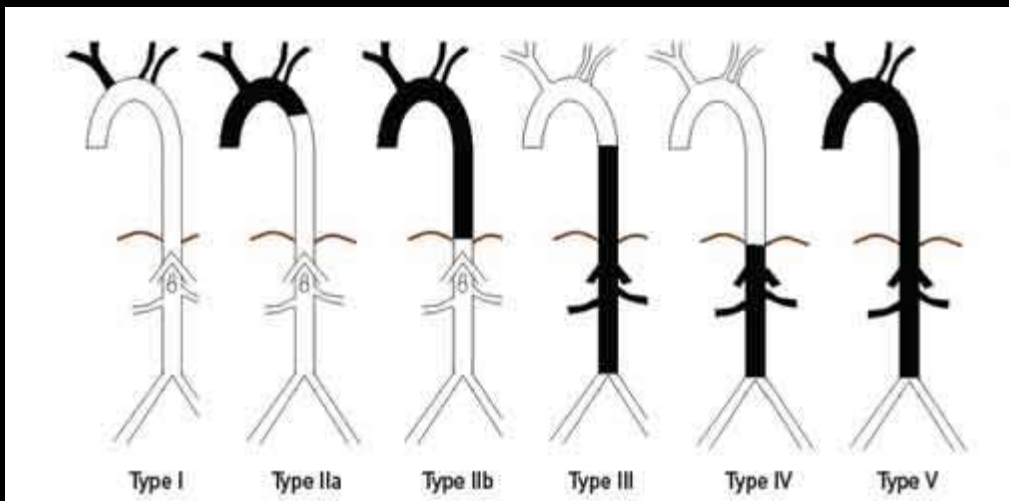
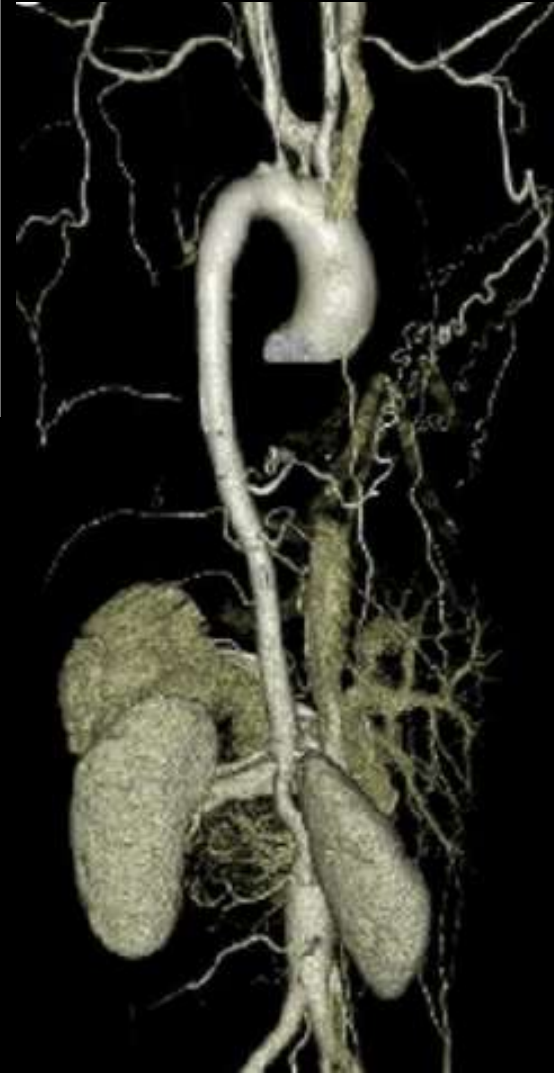
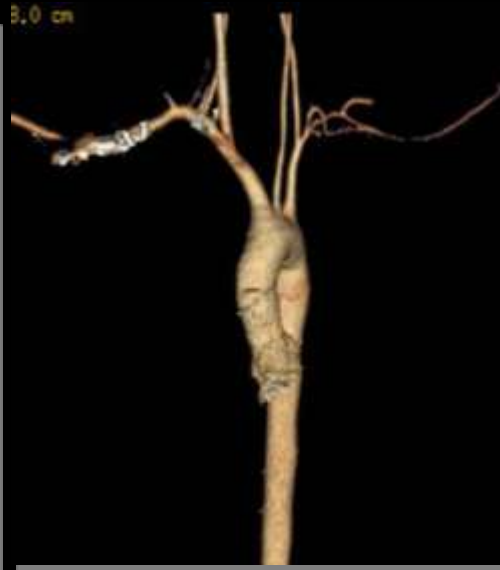
Takayasu

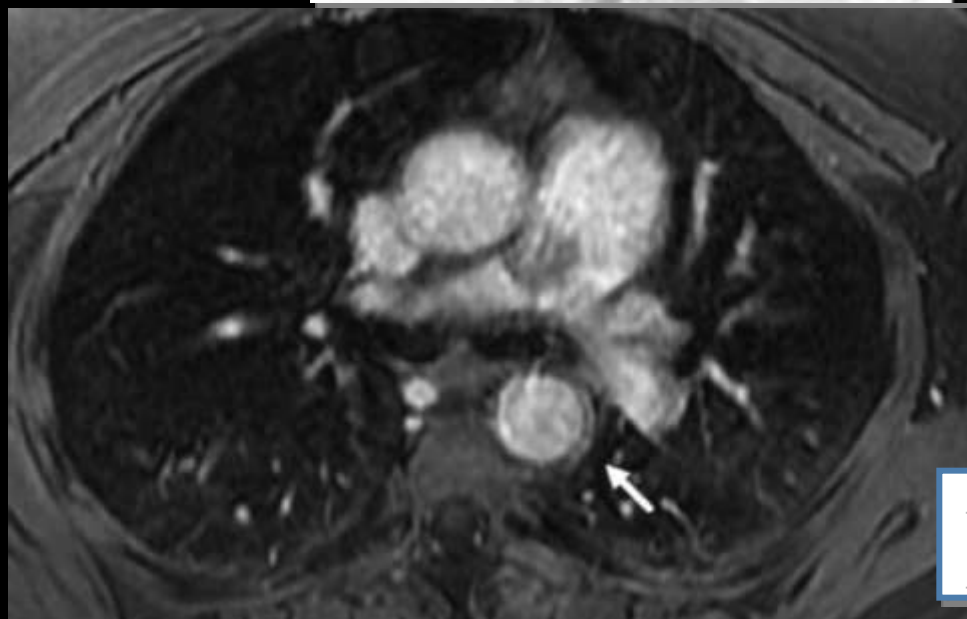
- Esatta valutazione dell'ispessimento delle pareti vasali;
- Possibilità di valutare *l'enhancement tardivo* di parete;



Takayasu

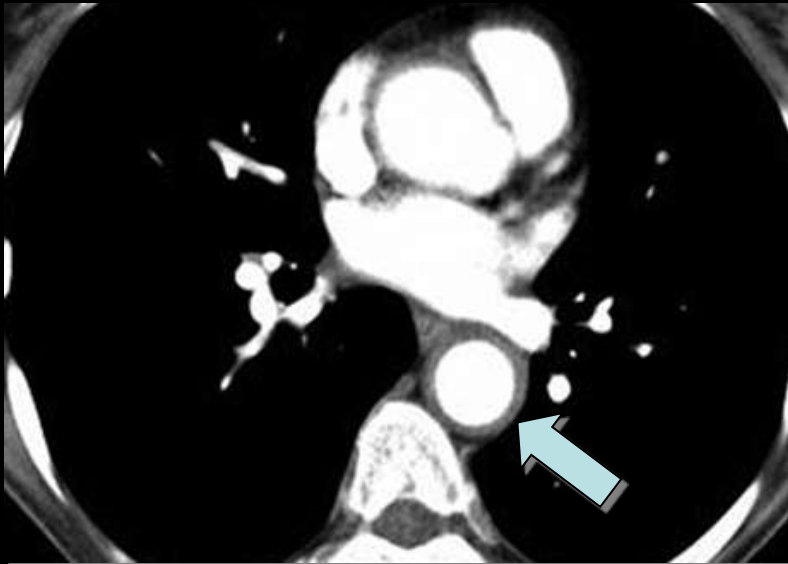
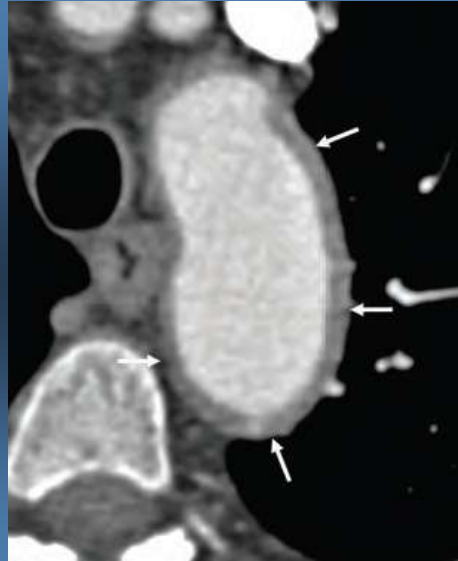
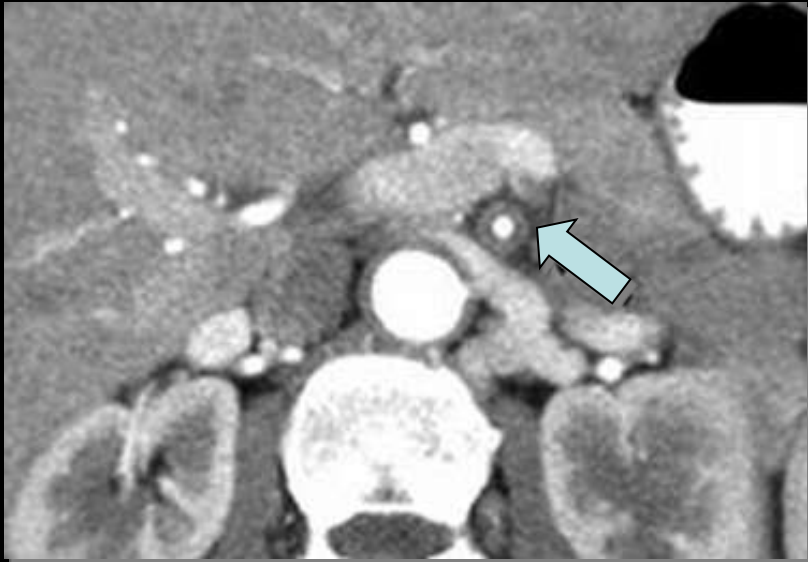
- Quantificazione della malattia
- Studio delle *eventuali stenosi*, dei *circoli collaterali* e diagnosi di eventuali altre complicanze (*es. dissecazione*);
- Fondamentale nel planning preoperatorio





- *utile* con il mdc (*Gadolinio*), per evidenziare l'enhancement della parete lesionata
- *fondamentale* nel follow-up, in considerazione della giovane età dei Pazienti

Arterite a cellule giganti



Imaging in systemic vasculitis

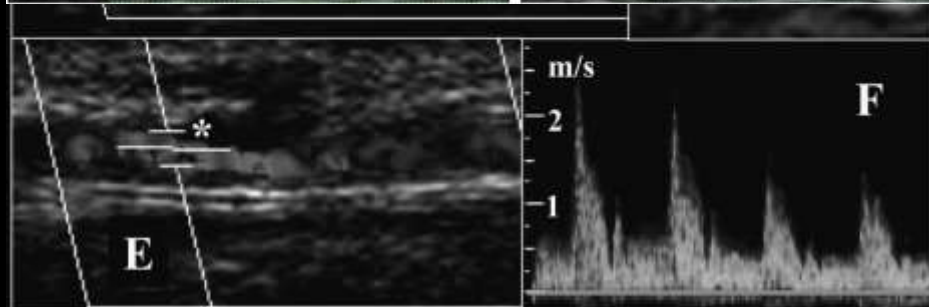
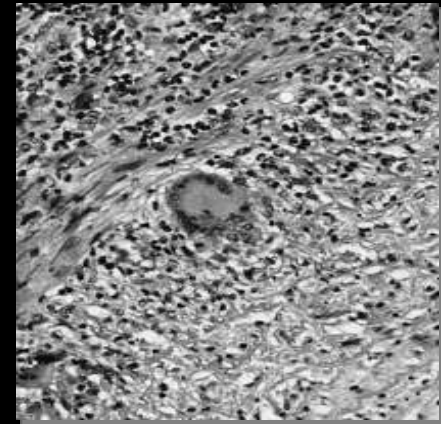
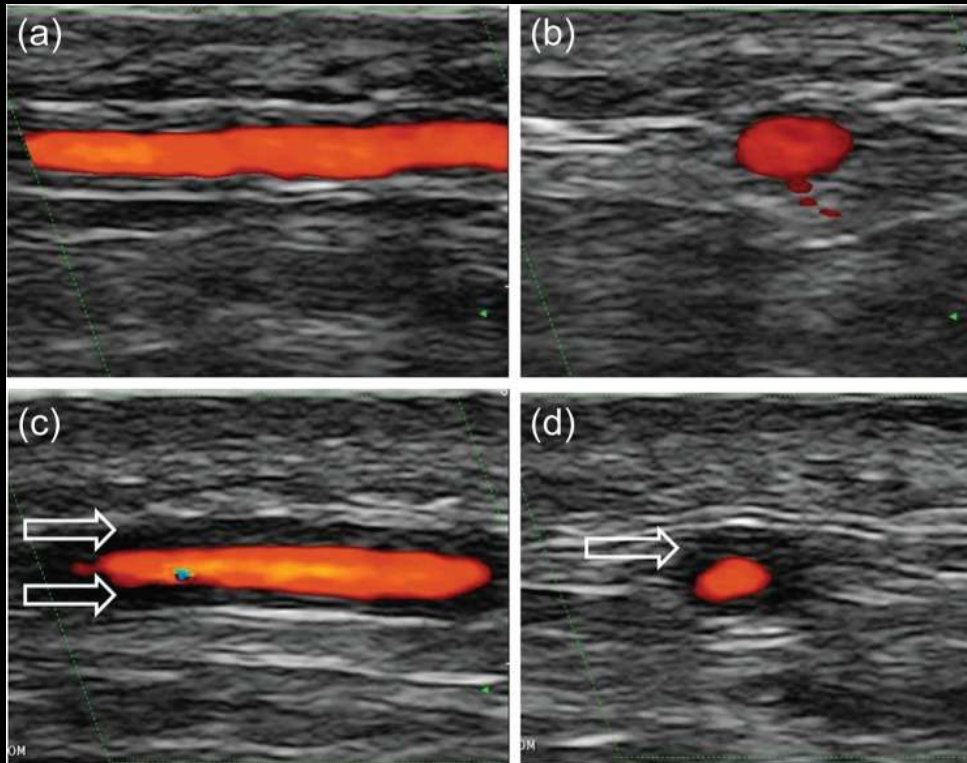
Sergio Prieto-González^a, Pedro Argüís^b, and María C. Cid^a

Arterite Temporale di Horton

Eco-Color-Doppler VS Biopsia



intima ispessita, infiammazione
granulomatosa della media



ClinicalTrials.gov

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Temporal Artery Biopsy vs ULtrasound in Diagnosis of GCA (TABUL)

This study is currently recruiting participants. (see Contacts and Locations)

Verified November 2013 by University of Oxford

Sponsor:
University of Oxford

ClinicalTrials.gov Identifier:
NCT00974883

First received: September 9, 2009
Last updated: January 27, 2014

Poliarterite nodosa

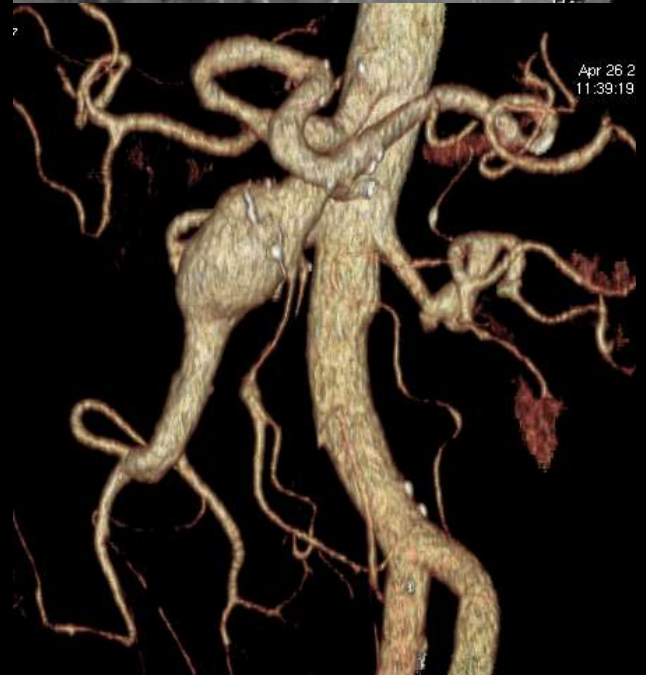
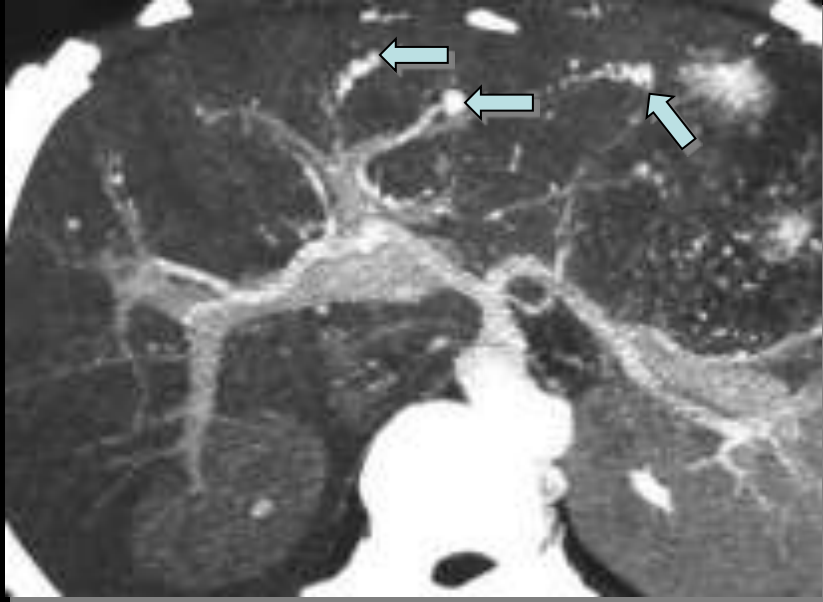
- Arterite necrotizzante del arterie di medio calibro, talora di arteriole
- Età media 40-45 anni
- 10-30 % associata a HBsAg e/o HCV
- Più frequentemente coinvolto il *circolo mesenterico e renale* ma anche *epatico e cerebrale* con multiple dilatazioni aneurismatiche



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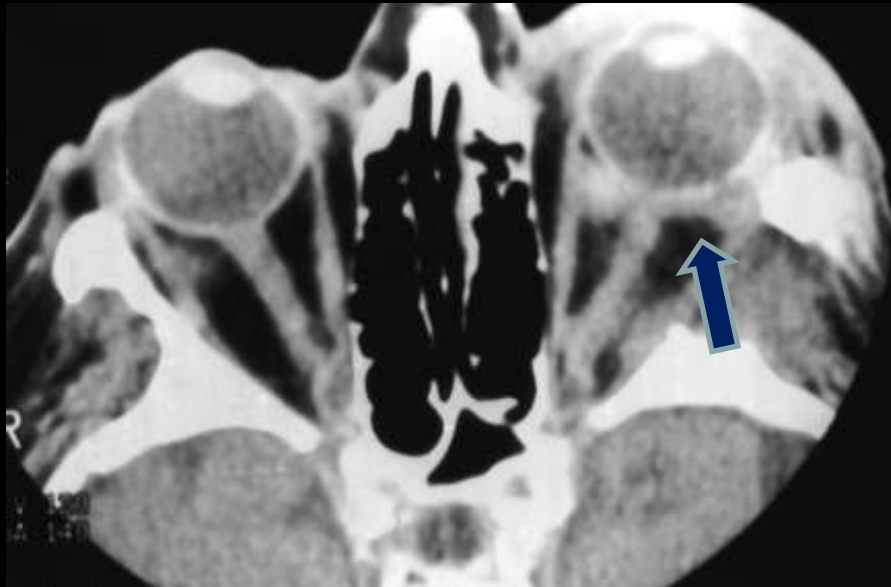
- Perdita di peso > 4 Kg
- Livedo reticularis
- Dolore testicolare
- Mialgie, astenia, dolore alle gambe
- Mono o polineuropatia
- PA diast > 90 mmHg
- ↑ creatinina
- HBsAg
- Arteriografia anomala
- Biopsia arteriosa (*PMN nella parete*)

Poliarterite nodosa

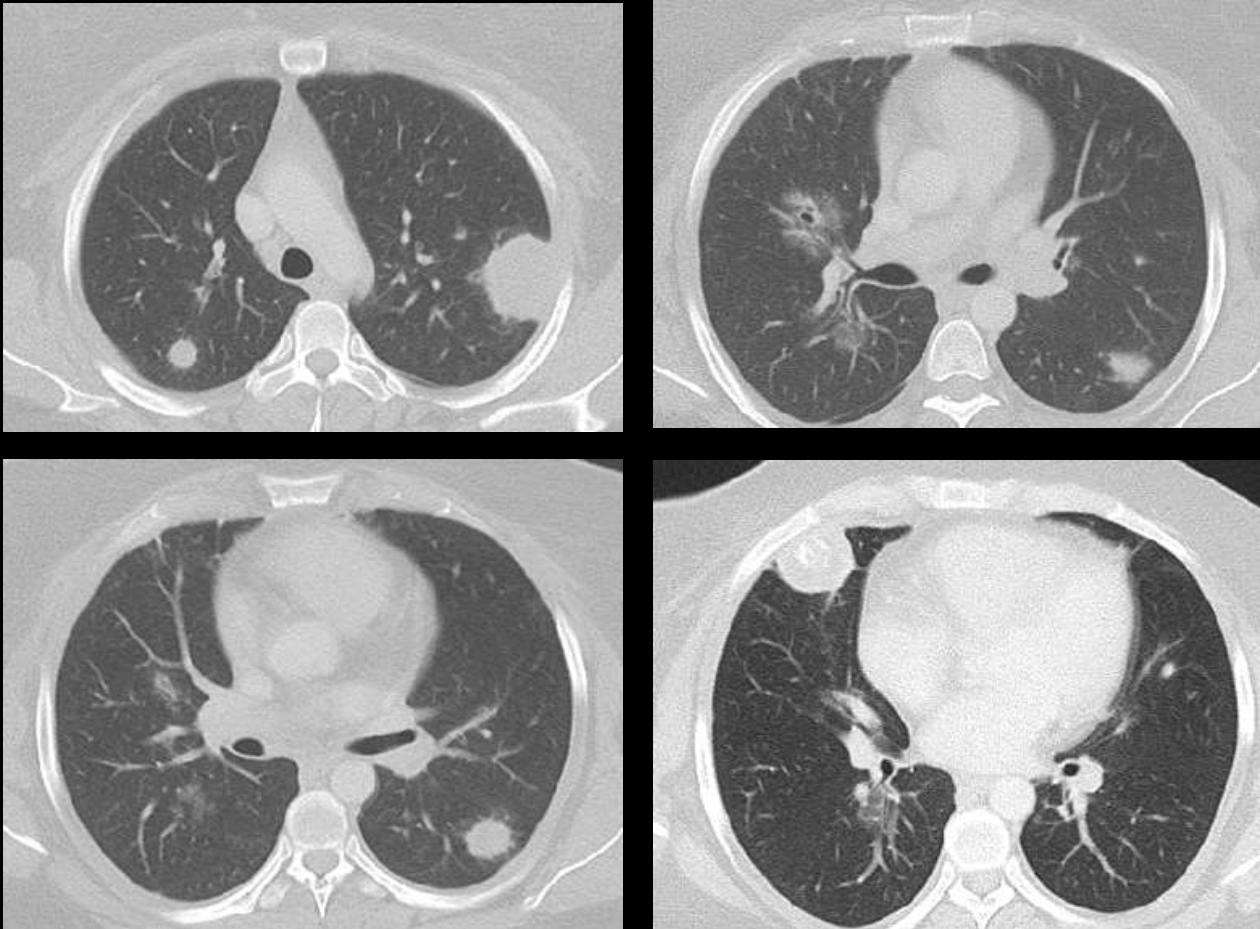


Granulomatosi di Wegener

- Arterite necrotizzante dei piccoli vasi
- ANCA positività 80-90 % (*cANCA /Pr3*)
- Vie aeree superiori: sinusite, perforazione del setto, naso deformato a sella, stenosi subglottica
- Polmone: noduli, lesioni cavitarie, emorragia alveolare
- Rene: GN (*non a semilune*)



Granulomatosi di Wegener



- noduli o masse fino a 10 cm di diametro
- possibilità di cavitazione
- margini irregolari , “halo” sign con opacità ground-glass circondanti le lesioni



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2015F1CAR.FERRARI.COM

CAUTION
THIS MACHINE
HAS NO BRAIN
USE YOUR OWN



Prima di venire qui ero confuso
riguardo questo argomento.
Al termine di questa presentazione
sono ancora confuso,
ma ad un più alto livello.....

Enrico Fermi
1938 Nobel laureate in Phisics

