Congenital abnormalities of the coronary arteries: what did we learn from the ANOCOR registry?

Pierre Aubry (Paris) on behalf of the ANOCOR group

conflict of interest: nothing to report

ANOCOR cohort

ANOCOR: anomalous connections of the coronary arteries

- n = 472 patients
- n = 496 coronary abnormalities
- recrutment period: 01/2010-01/2013

Coordination

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PARIS NORD VAL DE SEINE
Bichat - Claude-Bernard

ASSISTANCE PUBLIQUE HÔPITAUX DE PARIS

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# ANOCOR group

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inclusion criteria

☒ proximal anomalous connection of ≥ one coronary artery
☒ coronary angiography (invasive or CT scan) ≤ 6 months
☒ age ≥ 15
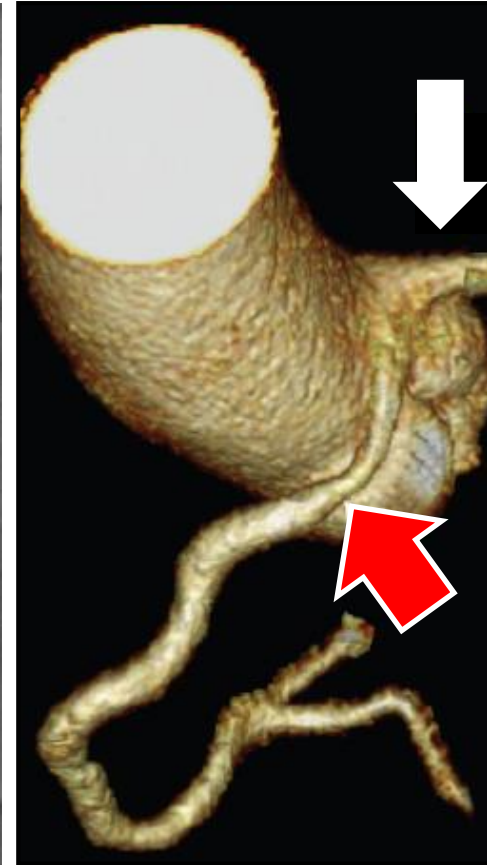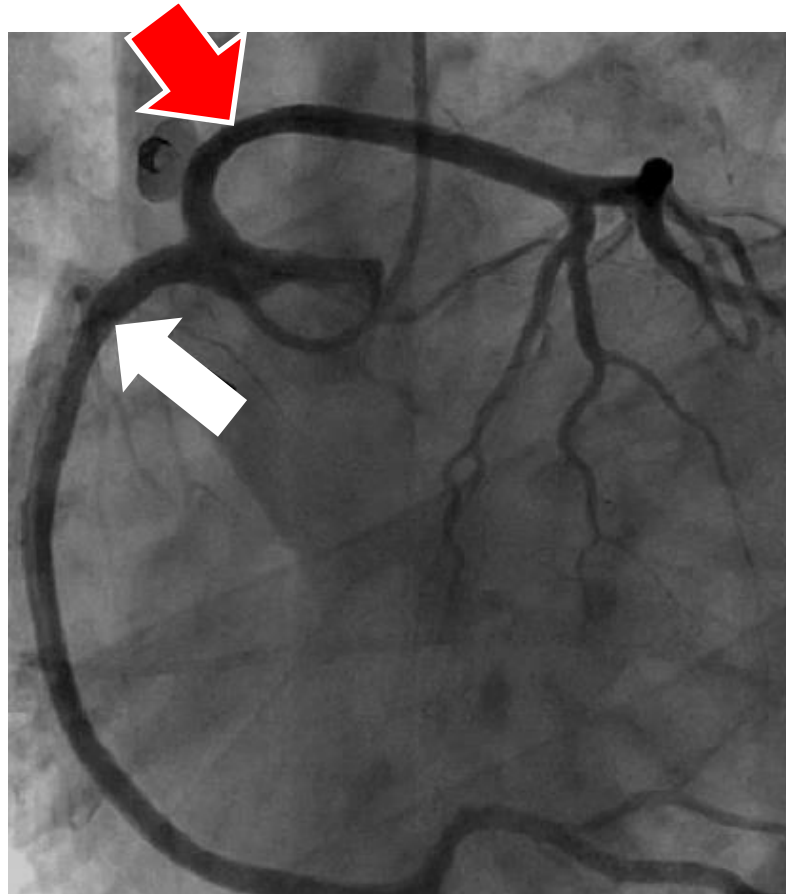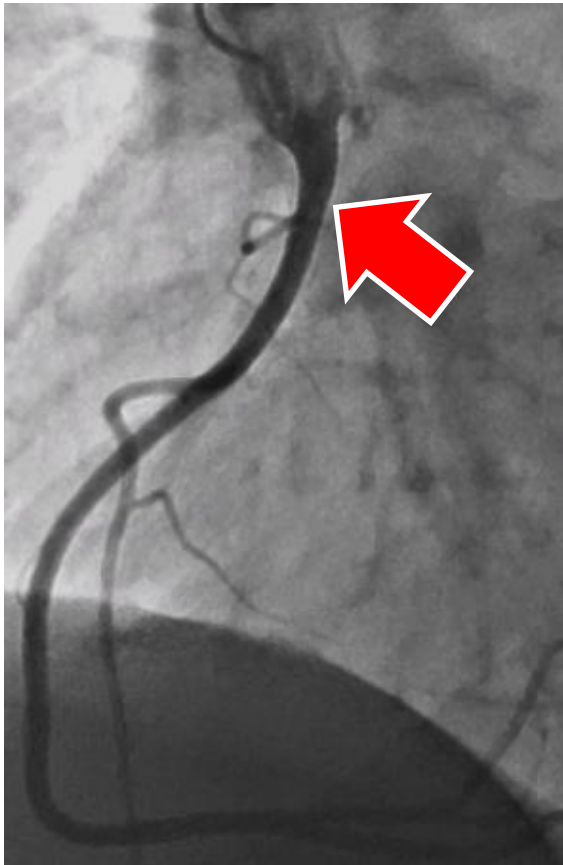
first imaging modality (n = 472 patients)

invasive CA, n (%)	421 (89.2)
coronary CT scan, n (%)	51 (10.8)

CA: coronary angiography
CT: computed tomography

type of coronary artery

circumflex coronary artery, %	47.5
right coronary artery, %	33.0
left main coronary artery, %	12.0
LAD coronary artery, %	5.5
other arteries, %	2.0

LAD: left anterior descending

type of connection

opposite sinus, %	47.0
contralateral artery, %	43.5
above the sinotubular jonction, %	6.0
appropriate sinus, %	1.0
single coronary artery, %	1.0
pulmonary artery, %	1.0
non coronary sinus, %	0.4
other connections, %	0.1

patient characteristics (n=472 patients)

male, n (%)	340 (71.6)
age (years), mean ± SD	63 ± 13
age (years), min - max	16 - 95
age (years), n (%) ≤ 35 > 35	 11 (2.3) 461 (97.7)

clinical presentation (n = 472 patients)

confirmed or suspected CAD, n (%)	295 (62.5)
atypical chest pain, n (%)	77 (16.3)
cardiomyopathy or valvulopathy, n (%)	78 (16.5)
aborted sudden death, n (%)	12 (2.5)
other presentations, n (%)	10 (2.2)

CAD: coronary artery disease

ectopic courses

prepulmonary · preaortic · retropulmonary · retroaortic
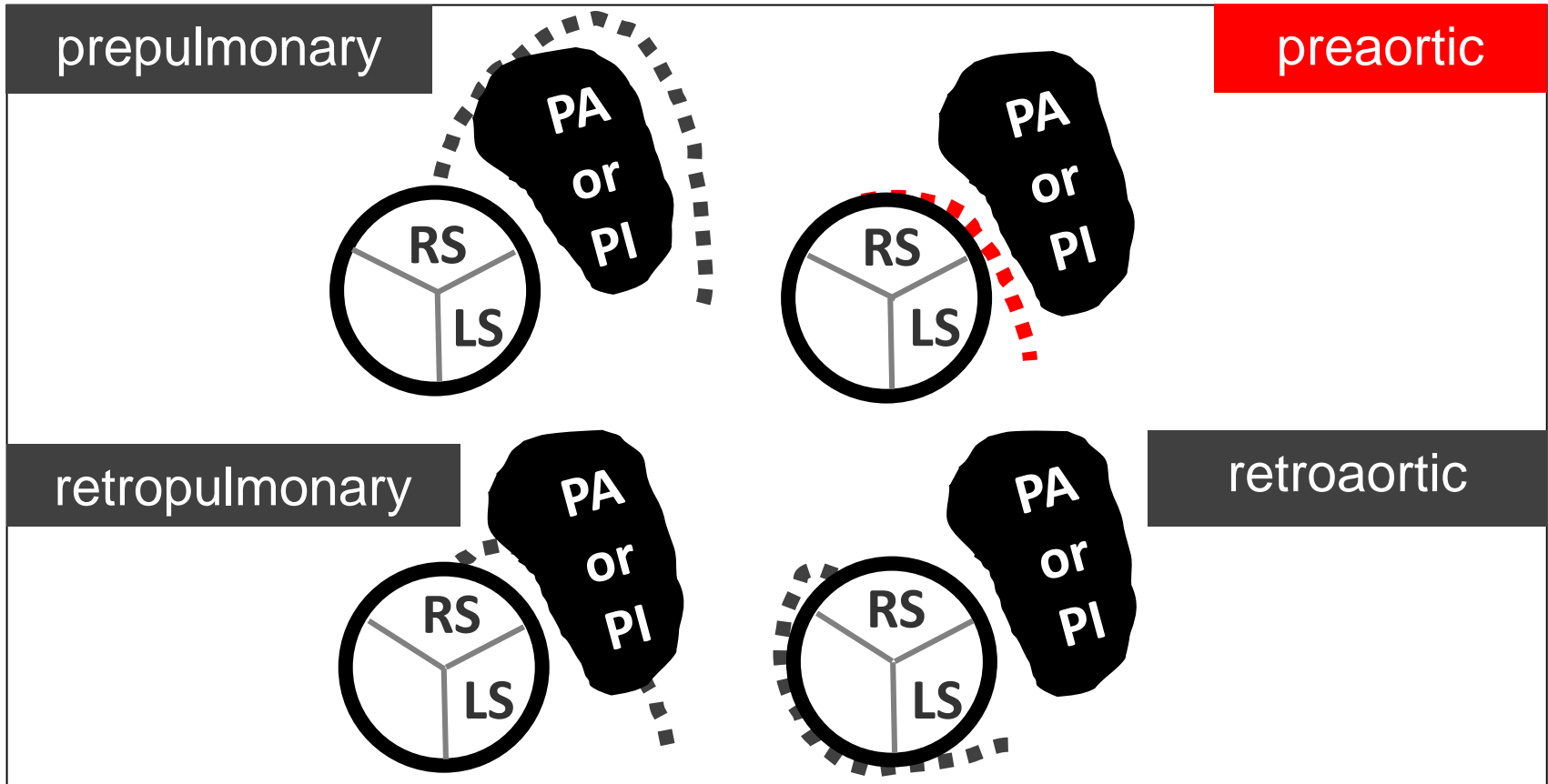
PA: pulmonary artery, PI: pulmonary infundibulum, RS: right sinus, LS: left sinus

type of course

LM **or** **LAD**	retropulmonary course, %	42.5
	prepulmonary course, %	30.0
	retroaortic course, %	13.5
	preaortic course, %	6.0
	other courses, %	8.0
Cx	retroaortic course, %	97.0
	other courses, %	3.0
RCA	preaortic course, %	89.5
	other courses, %	10.5

Cx: circumflex, LAD: left anterior descending, LM: left main, RCA: right coronary artery

risk classification (n=472 patients)

ANOCOR with preaortic course n (%)	154 (32.6)
ANOCOR with pulmonary connection n (%)	4 (0.8)
ANOCOR with other courses n (%)	314 (66.6)

ANOCOR: anomalous connections of the coronary arteries

patient characteristics (preaortic course)

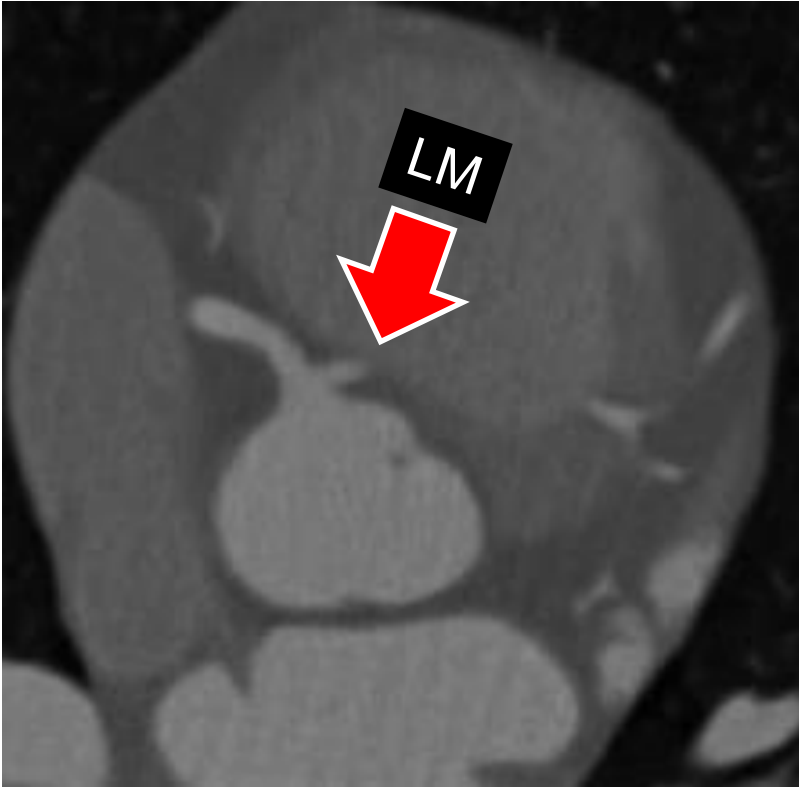| ANOCOR with preaortic course, n	154
age (years), mean	61
age (years), min - max	21 - 89
age (years), n (%) ≤ 35 > 35	5 (3.2) 149 (96.8)

ANOCOR: anomalous connections of the coronary arteries

assessment of invasive and CT coronary angiography
proximal ectopic course

fair agreement between interventional cardiologists
and expert angiographic committee

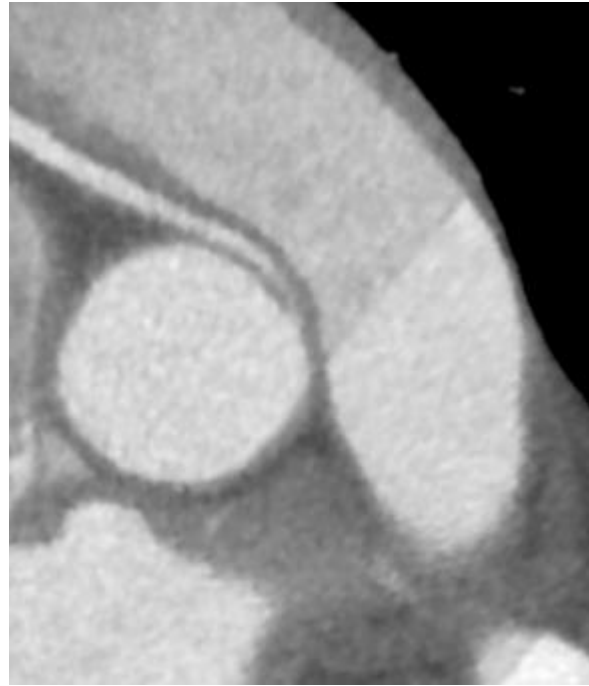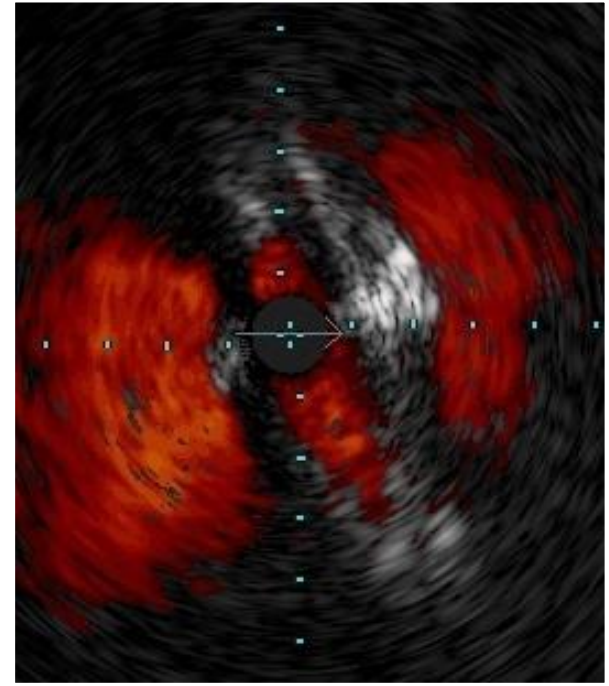$0.25 < k < 0.40$

misdiagnosis of course

retropulmonary

preaortic

high-risk ANOCOR

multimodality imaging of right ANOCOR

angio | CT-scan | IVUS

aborted sudden death (n=12)

n	12
age (years), mean ± SD	50.0 ± 17.0
age (years), min - max	16 - 75
age (years), n (%)	
≤ 35	3 (25.0)
> 35	9 (75.0)

aborted sudden death (n=12)

number	age	artery	connection	course	significant CAD
1	50	Cx	contralateral artery	retroaortic	present
2	75	Cx	contralateral artery	retroaortic	present
3	72	Cx	contralateral artery	retroaortic	present
4	16	LM	pulmonary artery	normal	absent
5	53	Cx	contralateral artery	retroaortic	present
6	48	Cx	contralateral artery	retroaortic	absent
7	57	CX	contralateral artery	retroaortic	present
8	60	RCA	ascending aorta	preaortic	present
9	31	RCA	contralateral sinus	preaortic	absent
10	60	RCA	contralateral sinus	preaortic	present
11	30	RCA	contralateral sinus	preaortic	absent
12	44	CX	contralateral sinus	retroaortic	absent

Cx: circumflex, LM: left main, RCA: right coronary artery

management

no treatment

restrictive activity
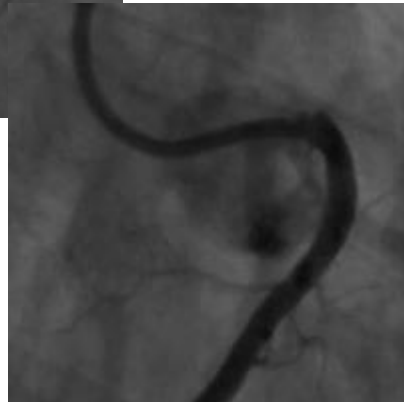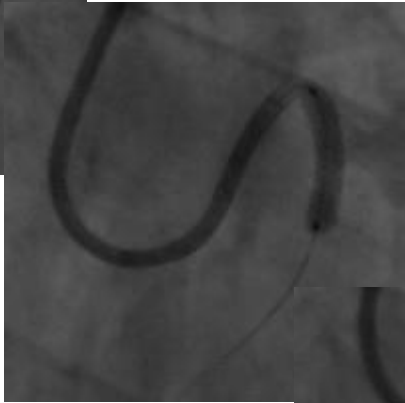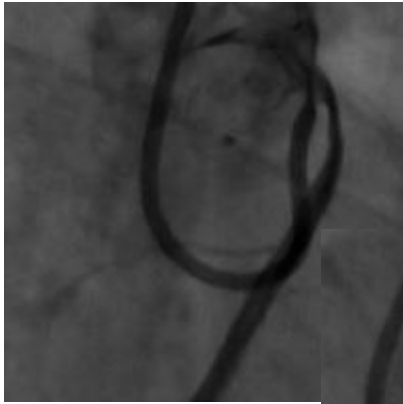
Gaudin R et al.
Multimed Man Cardiothorac Surg 2014

angioplasty

surgery

first messages

- ANOCOR population (n=472) is currently the largest cohort dedicated to anomalous connections of coronary arteries in adults

- discovery of ANOCOR is generally fortuitous in adults ≥ 35 y

- right ANOCOR is almost always associated with a preaortic course

- misdiagnosis of ectopic course is non rare

- revascularization is rarely proposed in adults with high-risk ANOCOR in the lack of CAD associated

ANOCOR: anomalous connections of the coronary arteries, CAD: coronary artery disease

what is next?

- natural history of high-risk ANOCOR

- history of corrected high-risk ANOCOR

- specific features of ANOCOR associated with aborted sudden death

- evaluation of ANOCOR with preaortic course

- risk stratification model in young people and adults with ANOCOR

- techniques of correction (surgery, angioplasty)

ANOCOR: anomalous connections of the coronary arteries

www.sfcardio.fr

Groupes et filiales - GACI - registres - ANOCOR

multidisciplinary ANOCOR group
discussion of patients with ANOCOR
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