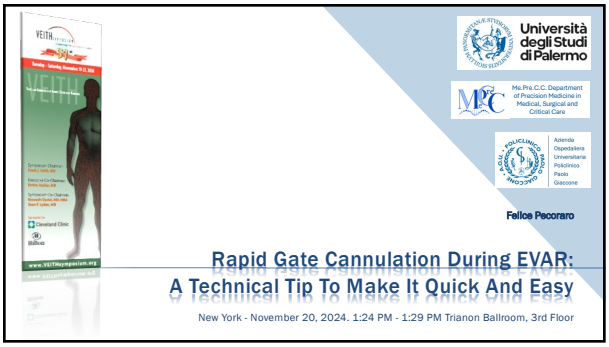
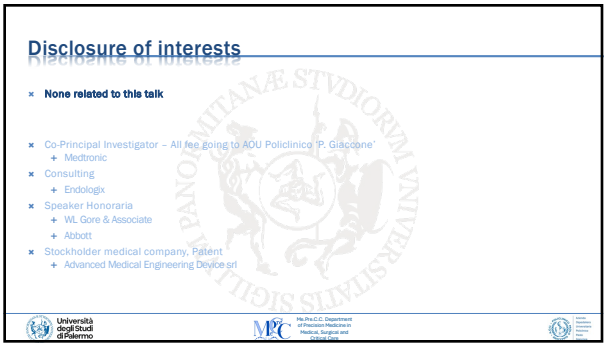
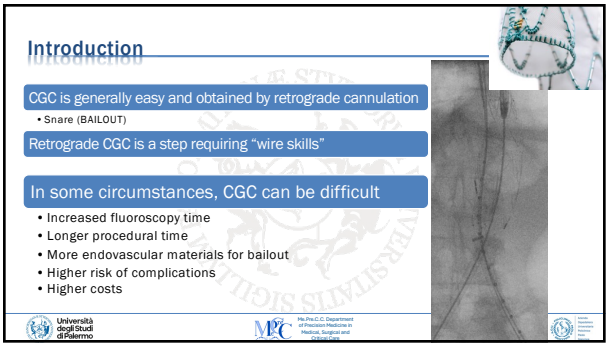
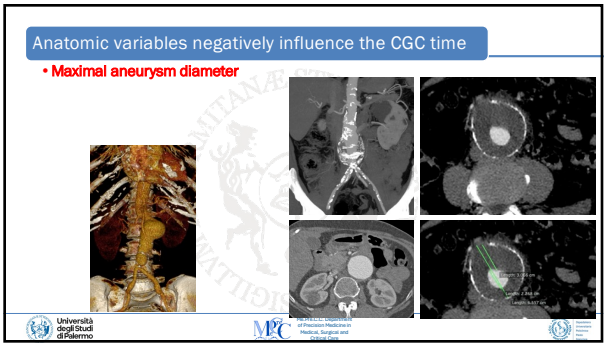
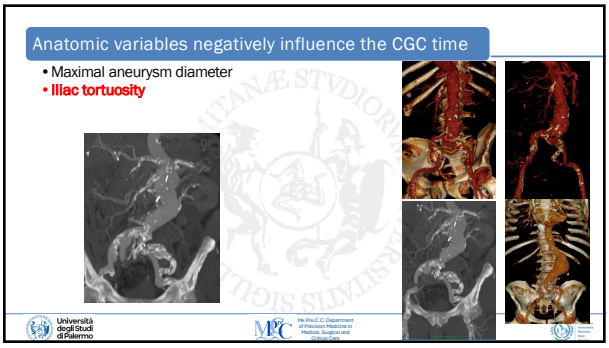
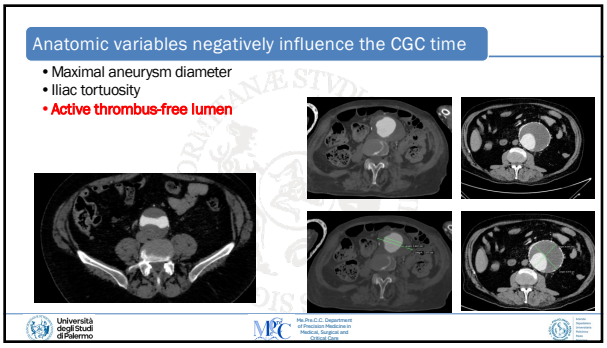

Università degli Studi di Palermo
Felice Pecoraro
Rapid Gate Cannulation During EVAR:
A Technical Tip To Make It Quick And Easy
New York - November 20, 2024. 1:24 PM - 1:29 PM Trianon Ballroom, 3rd Floor


Disclosure of interests
None related to this talk
Co-Principal Investigator – All fee going to AOU Policlinico 'P. Giaccone'
+ Medtronic
Consulting
+ Endologix
Speaker Honoraria
+ WL Gore & Associate
+ Abbott
Stockholder medical company, Patent
+ Advanced Medical Engineering Device srl


Introduction
CGC is generally easy and obtained by retrograde cannulation
• Snare (BAILOUT)
Retrograde CGC is a step requiring "wire skills"
In some circumstances, CGC can be difficult
• Increased fluoroscopy time
• Longer procedural time
• More endovascular materials for bailout
• Higher risk of complications
• Higher costs


Anatomic variables negatively influence the CGC time
• Maximal aneurysm diameter


Anatomic variables negatively influence the CGC time
• Maximal aneurysm diameter
• Iliac tortuosity


Anatomic variables negatively influence the CGC time
• Maximal aneurysm diameter
• Iliac tortuosity
• Active thrombus-free lumen

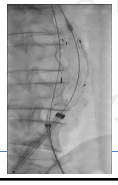
Anatomic variables negatively influence the CGC time

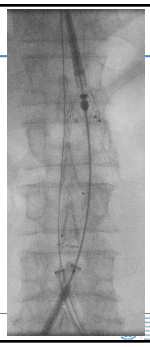
- Maximal aneurysm diameter
- Iliac tortuosity
- Active thrombus-free lumen
- **Aortic bifurcation angulation**

Speed gate cannulation

Is a technical tip, to speed up and ease the contralateral gate cannualtion

- Elective EVAR
- Emergent EVAR (time is essence)





Retrospective Analysis - SGC

55 patients

Technical success 100 %.

CLG cannulation fluoro time 37.6 ± 33 (range 1–105) seconds.

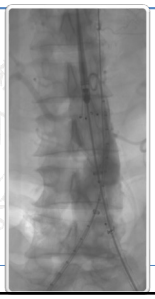
SG Deployed in crossed limb "ballerina" configuration - 48 (87,3%)

No correlation with aneurysm Maximal TD, active aortic lumen, aortic carrefour diameter, stent-graft introduction side or deployment configuration.

Improved technique for sheath supported contralateral limb gate cannulation in endovascular abdominal aortic aneurysm repair

Carrefour angulation on Coronal Axis

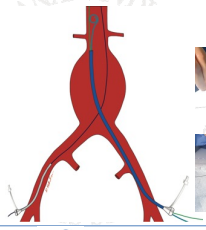
- The aortic carrefour angulation on coronal axis strongly correlates with cannulation time p = <.001.
- Higher was the carrefour angulation on coronal axis, higher was the cannulation time (Pearson correlation coefficient 0.47).

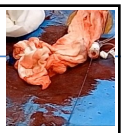


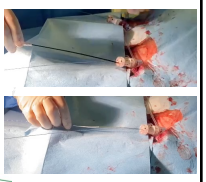
SGC - Technique

Buddy wire - Left Axis

- From the main body contralateral access
- A 30 cm 12 to 18 Fr introducer sheath is inserted over a stiff wire and advanced into the aorta below the proximal neck.
- Coaxially insertion of an additional 0.035-inch standard J-tip guidewire with a 5 fr Pigtail angiographic catheter through an inflatable valve.



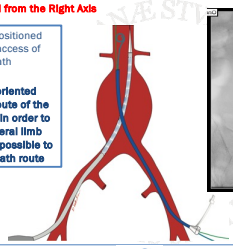


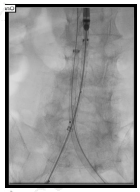


SGC - Technique

Main body positioned from the Right Axis

- The main body is positioned from the opposite access of the supported sheath
- **The main body is oriented according to the route of the supported sheath in order to have the contralateral limb opening closer as possible to the supported sheath route**

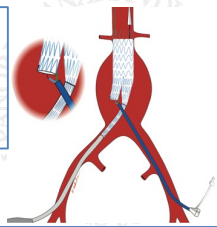


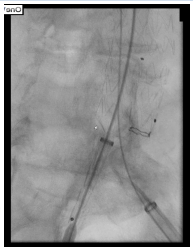


SGC - Technique

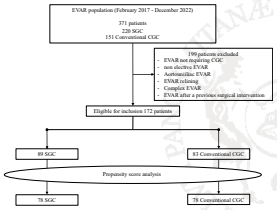
Retrieve the Sheath at CLG opening

- The supported sheath is retrieved until the level of the contralateral limb
- The main body is deployed
- The coaxial wire with catheter are retrieved and employed to catheterize the contralateral limb





The study - M&M



Primary outcomes

- Operative time
- CGC time
- Mean contrast medium
- Fluoroscopy time
- Dose-area product (DAP)
- CGC fluoroscopy time

Secondary outcomes

- Perioperative mortality and morbidity
- Endoleak incidence
- Number of iliac stent-graft
- Survival and freedom from reintervention

Baseline Characteristics

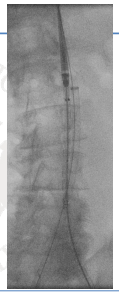
	Unmatched Cohort			Matched Cohort			
Variables	SGC (89)	STD (83)	P	SGC (78)	STD (78)	SE Diff	P
Age, y, (SD)	78 [8]	81 [9]	0.16	78 [8]	81[9]	-6.4	0.21
Male gender, n (%)	63 (70.8)	67 (80.7)	0.94	62 (79.5)	63 (80.8)	0.12	1
Associated comorbidities							
Hypertension, n (%)	81 (91)	67 (80.7)	**<0.001**	65 (83.3)	59 (75.6)	0.07	0.68
Ever smoker, n (%)	68 (83.9)	69 (90)	0.9	67 (60.2)	66 (59)	0.11	0.9
COPD, n (%)	11 (12.3)	15 (18.1)	0.6	10 (12.8)	10 (12.8)	0.12	0.77
CVD, n(%)	8 (9)	7 (8.6)	0.4	6 (7.7)	6(7.7)	0.14	0.75
PAD, n (%)	11 (12.3)	17 (20.5)	**<0.001**	10 (12.8)	11 (14.1)	0.12	0.74
Diabete, n (%)	41 (46.1)	48 (57.8)	0.2	35 (44.9)	27(34.6)	0.13	0.55
Lipid Disorder, n (%)	63 (70.8)	55 (66.3)	**<0.001**	57 (73.1)	54 (69.2)	0.15	0.42
CAD, n (%)	44 (49.4)	42 (50.6)	0.3	35 (44.9)	41 (52.6)	0.11	0.58
Previous CI, n (%)	21 (23.6)	27 (32.5)	0.5	17 (21.8)	18 (23.1)	0.05	0.68
Preop GFR <60 ml/min, n (%)	10 (11.2)	12 (14.4)	0.4	9 (11.5)	9 (11.5)	0.11	0.71
LVEF < 50%, n (%)	13 (14.6)	15 (18.1)	0.4	12 (15.4)	13 (16.7)	0.15	0.75
Preoperative NYHA							
I, n (%)	69 (77.5)	57 (68.7)	0.5	60 (76.9)	56 (71.8)	0.09	0.89
II, n (%)	12 (13.5)	16 (19.3)	0.6	11 (14.1)	14 (18)	0.11	0.71
III, n (%)	5 (5.6)	6 (7.2)	**<0.001**	4 (5.1)	5 (6.4)	0.13	0.77
IV, n (%)	3 (3.4)	4 (4.8)	0.3	3 (3.8)	3 (3.8)	0.08	0.95
ASA classifiction							
I, n (%)	0	0	1	0	0	-	1
II, n (%)	0	0	1	0	0	-	1
III, n (%)	63 (70.8)	61 (73.5)	0.4	59 (75.7)	58 (74.4)	0.13	0.66
IV, n (%)	26 (29.2)	22 (26.5)	0.5	19 (24.3)	20 (25.6)	0.11	0.74
Aneurysm behavior							
MATD, mm [IQR]	64 [55-71]	66 [55-77]	0.42	65 [55-69]	65 [55-70]	3.7	0.35
Neck length, mm [IQR]	13 [10-19]	15 [11-22]	0.12	14 [10-19]	15 [11-21]	6.8	0.18
Neck angle, ° [IQR]	43 [25-55]	34 [22-41]	**0.05**	38 [23-48]	39 [24-40]	4.8	0.37
Neck diameter, mm [IQR]	26 [22-29]	24 [20-27]	0.6	24 [21-28]	24 [20-28]	7.2	0.36
Right CIA involvement, n (%)	17 (19.1)	13 (15.7)	0.73	15 (19.2)	12 (15.4)	0.11	0.42
Left CIA involvement, n (%)	7 (7.9)	9 (10.8)	0.65	6 (7.7)	8 (10.2)	0.12	0.39
Fusiform Shape, n (%)	63 (70.8)	59 (71.1)	0.8	58 (74.4)	55 (70.5)	0.3	0.71

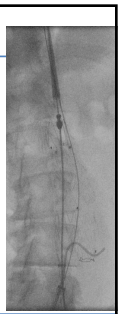
Operative details

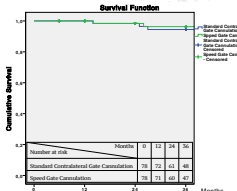
	Unmatched Cohort			Matched Cohort			
Variables	SGC (89)	STD (83)	P	SGC (78)	STD (78)	SE Diff	P
Stents graft fabric							
Endurant, n (%)	64 (71.9)	63 (75.9)	0.42	58 (74.4)	59 (75.6)	0.12	1
Endologix, n (%)	16 (18)	13 (15.7)	0.5	13 (16.7)	12 (15.4)	0.12	1
Zenith, n (%)	5 (5.6)	4 (4.8)	0.3	4 (5.1)	4 (5.1)	0.15	1
Excluder, n (%)	4 (4.5)	3 (3.6)	0.3	3 (3.8)	3 (3.8)	0.13	1
Number of components, n [IQR]	2 [1-3]	3 [1-4]	0,16	2 [1-3]	3 [1-5]	1	0.8
"Ballerina" configuration, n (%)	48 (54)	42 (50.6)	0.54	41 (52.6)	41 (52.6)	0.21	0.71
Operative time, min [IQR]	66 [60-75]	79 [68-85]	0.73	73 [67-85]	77 [74-86]	2.1	0.07
CGC time, min [IQR]	3 [1-5]	12 [7-17]	**<0.001**	4 [1-6]	8 [6-14]	1.2	**0.001**
Mean contrast medium, ml [IQR]	55 [45-72]	81 [77-93]	**<0.001**	61 [50-72]	77 [71-92]	1.3	**0.03**
Fluoroscopy time, min [IQR]	11 [8-14]	21 [13-23]	**<0.001**	12 [9-16]	17 [12-25]	1.4	**0.001**
DAP, G*cm2 [IQR]	14 [9-18]	32 []	**<0.001**	15 [9-21]	26 [16-34]	0.1	**<0.001**
CGC Fluoroscopy time, sec [IQR]	45 [27]	96 [32]	**<0.001**	45 [2665]	96 [70-133]	1	**0.001**

Pearson Correlation

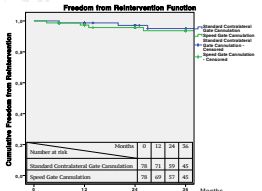
	CGC time			CGC time
Aneurysm behavior		Stents graft fabric		
MATD	Correlation -0.108	Endurant	Correlation -0.043	
	Sig (2-t) 0.48		Sig (2-t) 0.777	
Neck length	Correlation -0.139	Endologix	Correlation 0.164	
	Sig (2-t) 0.161		Sig (2-t) 0.281	
Neck angle	Correlation -0.347	Zenith	Correlation -0.1	
	Sig (2-t) **0.02**		Sig (2-t) 0.513	
Neck diameter	Correlation 0.05	Excluder	Correlation -0.144	
	Sig (2-t) 0.744		Sig (2-t) -0.344	
Right CIA involvement	Correlation 0.1	Number of components	Correlation -0.22	
	Sig (2-t) 0.513		Sig (2-t) 0.146	
Left CIA involvement	Correlation 0.154	"Ballerina" configuration	Correlation -0.093	
	Sig (2-t) 0.312		Sig (2-t) 0.544	
Sacciform Shape	Correlation 0.387	Operative time	Correlation -0.071	
	Sig (2-t) **0.04**		Sig (2-t) 0.644	





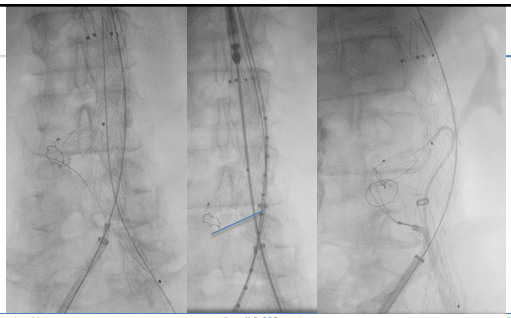


Survival @ 36 months:
97% for SGC group and 96% for conventional group (P = .678)



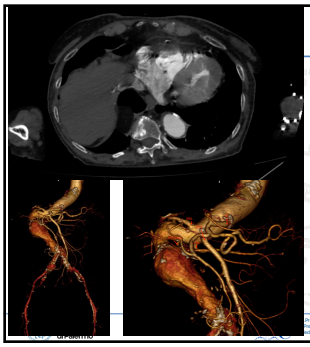
Freedom from reintervention @ 36 months:
93% in both the groups (P = .834).

Contraindications?



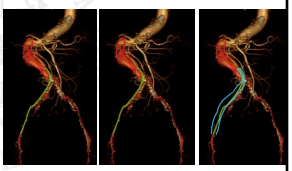
Conclusions

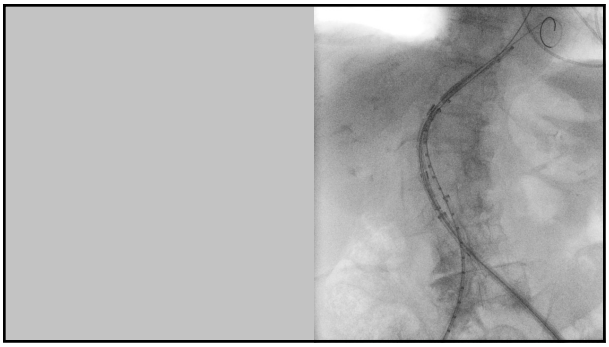
- The SGC is a simple adjunctive trick aiming to facilitate and ease the CL cannulation
- SGC was feasible with no registered postoperative complications
- SGC was not associated to an increased overall procedure time
- SGC reduced significantly
  - contrast medium usage
  - radiation exposure
  - CGC time
- The crossed limb configuration is indicated when guidewires are crossed at the aortic bifurcation
- In eEVAR, when time is essence, tips to reduce cannulation time should be always employed.

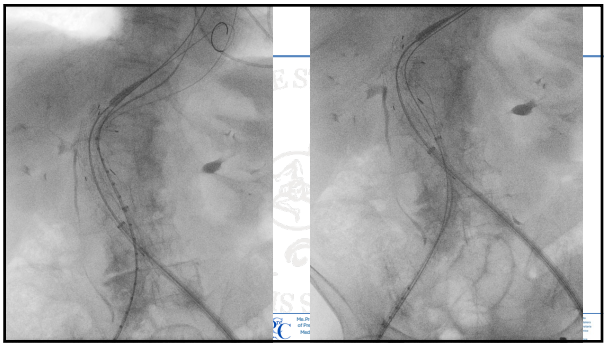


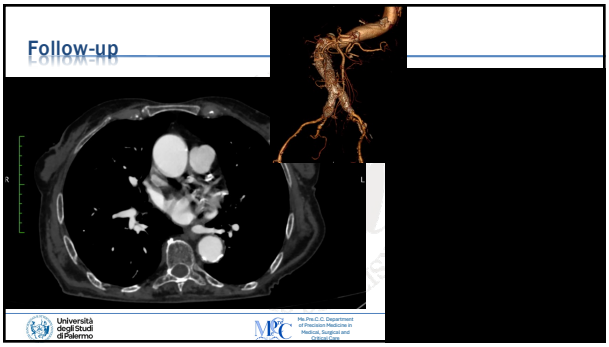
If you fail to plan, you are planning to fail!

BENJAMIN FRANKLIN








Follow-up

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Thanks for your attention!