

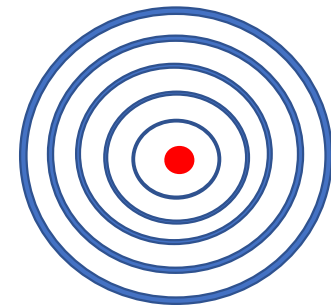
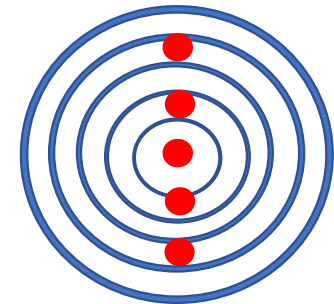
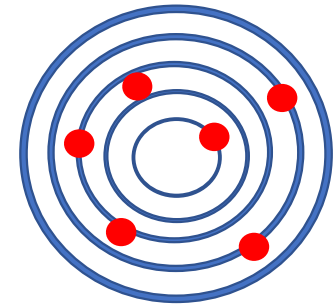
La technique du Buttonhole

Principes et retour d'expérience

Dr Raphaël COHEN

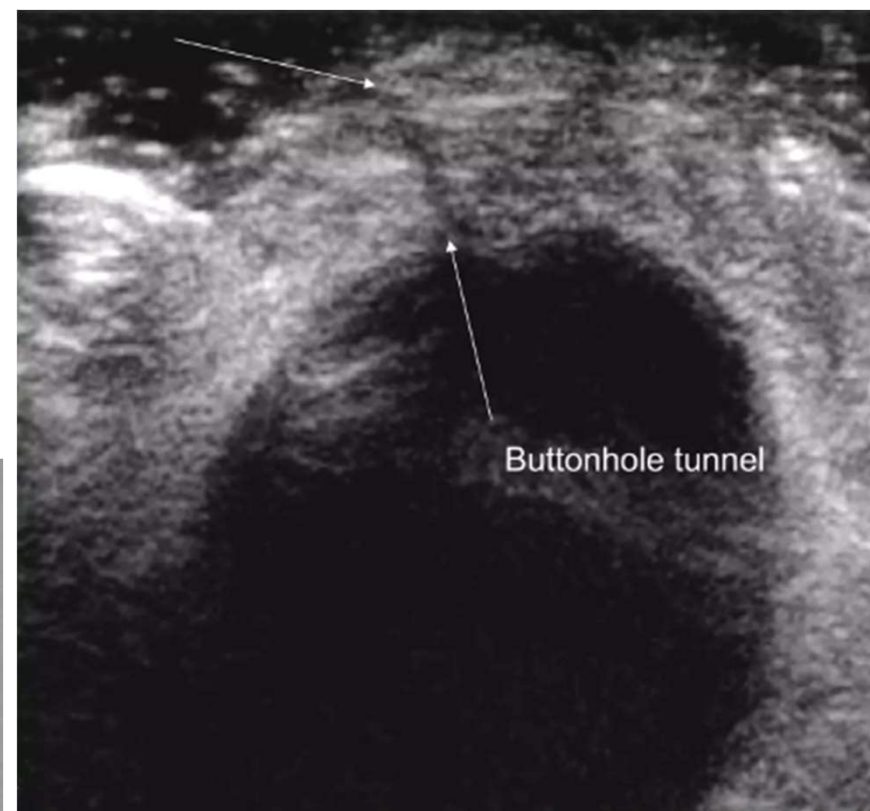
3 technique de ponctions

- Ponction dans la même région
- Rope ladder
- Button hole



Principe de la technique Buttonhole

- Création d'un tunnel par ponctions au même **point** et selon le même **angle** et la même **profondeur** avec des aiguilles tranchantes
- permettant l'utilisation d'aiguille émoussée par la suite



Intérêt de la technique buttonhole

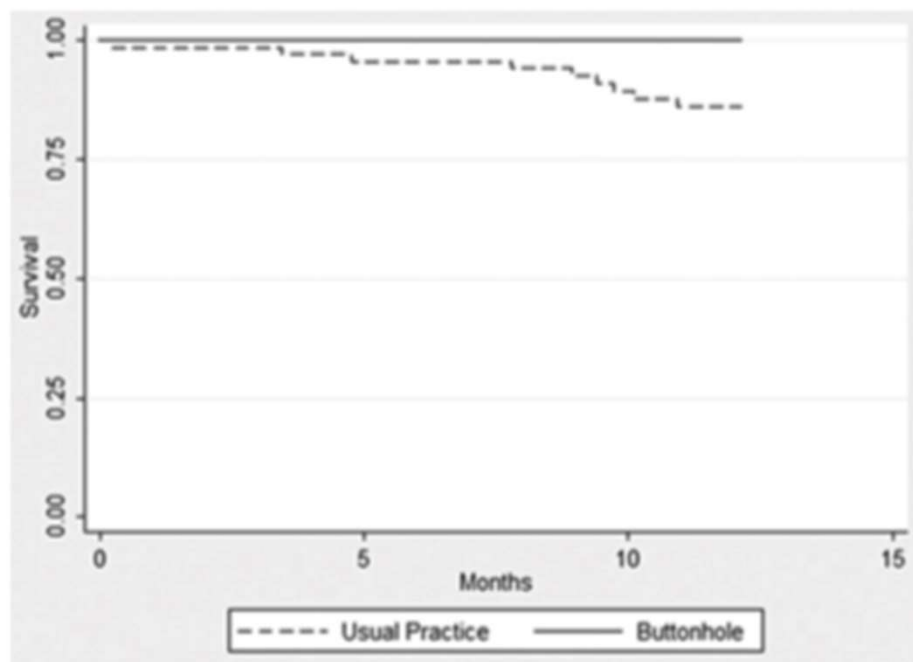


Figure 2. Arteriovenous fistula survival curves based on original randomization assignment (intent to treat).

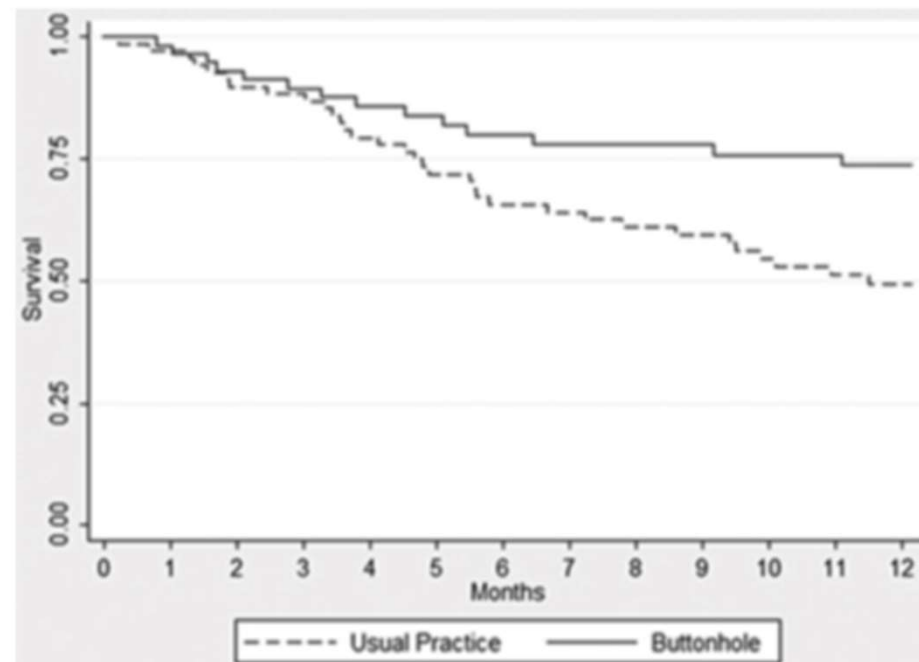


Figure 3. One-year primary patency based on original randomization assignment (intent to treat); 1-year primary patency for arteriovenous fistulas using the buttonhole technique was 74%, and for usual practice, 49%.

Vaux E, King J, Lloyd S, Moore J, Bailey L, Reading I, Naik R. Effect of buttonhole cannulation with a polycarbonate PEG on in-center hemodialysis fistula outcomes: a randomized controlled trial. *Am J Kidney Dis.* 2013 Jul;62(1):81-8. doi: 10.1053/j.ajkd.2013.01.011. Epub 2013 Mar 7. PMID: 23473984.

Intérêt de la technique buttonhole

Table 3. Comparison of Number of Interventions in Each Group

	Fistuloplasty for Stenosis	Successful Thrombectomy	Total No. of Interventions
Usual practice, n = 69	25 (36)	2 (3)	27 (39)
Buttonhole, n = 58	10 (17)	1 (2)	11 (19)

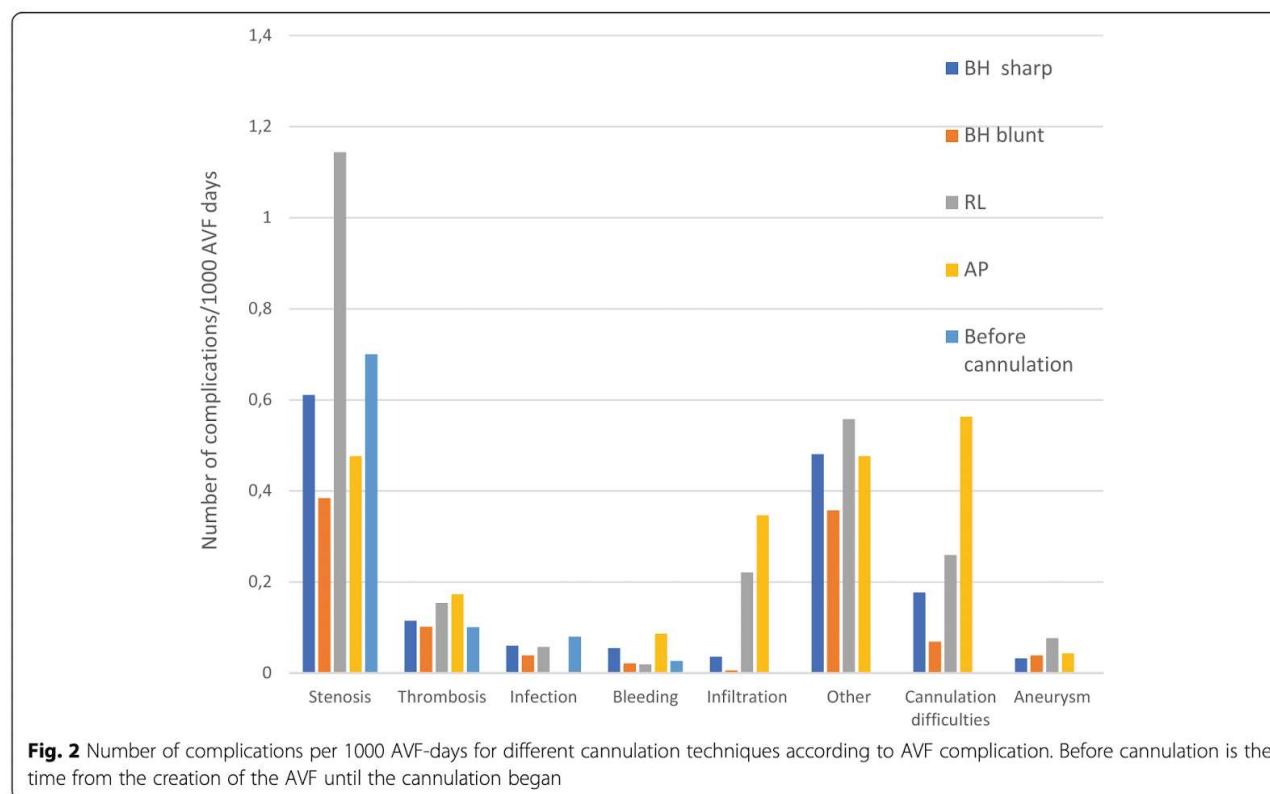
Vaux E, King J, Lloyd S, Moore J, Bailey L, Reading I, Naik R. Effect of buttonhole cannulation with a polycarbonate PEG on in-center hemodialysis fistula outcomes: a randomized controlled trial. Am J Kidney Dis. 2013 Jul;62(1):81-8. doi: 10.1053/j.ajkd.2013.01.011. Epub 2013 Mar 7. PMID: 23473984.

Table 4. Enlargement of Any Existing Aneurysm and New Aneurysm Formation

	Buttonhole	Usual Practice
Total no. with existing aneurysm	13	15
Change in aneurysm size		
Bigger	3 (23)	10 (67)
Same size	6 (46)	4 (27)
Smaller	1 (8)	1 (7)
Unknown	3 (23)	0 (0)
Total no. with no existing aneurysm	45	54
Development of new aneurysm		
Yes	2 (4)	9 (17)
No	38 (84)	36 (67)
Unknown	5 (11)	9 (17)

Note: Values are given as number or number (percentage). Enlargement of an existing aneurysm was defined as an increase in size >0.5 cm during the 1-year study period. Missing data were from patients who died, underwent transplantation, or whose photograph was not obtained at appropriate time. New aneurysm formation was defined as development of an aneurysm >0.5 cm. Missing data were from patients who died, underwent transplantation, or whose photograph was not obtained at appropriate time.

Intérêt de la technique buttonhole



Staaf, K., Fernström, A. & Uhlin, F. Cannulation technique and complications in arteriovenous fistulas: a Swedish Renal Registry-based cohort study. BMC Nephrol 22, 256 (2021). <https://doi.org/10.1186/s12882-021-02458-z>

Avantages & inconvénients:

• Avantages:

- Moins douloureux
- Moins d'hématome
- Moins de sténose
- Moins de difficulté de ponction
- Réduction de la taille et de la croissance des anévrismes
- Moins d'anxiété
- Aide au passage en auto-ponction et diminution du risque d'échec de ponction dans ce cadre.

Inconvénients:

- Augmentation du risque infectieux
- Impossible avec les fistule prothétique (Gore-tex)
- Organisation (parfois) contraignante pour la création du tunnel

Indications et contre-indications

Indications

- Patient désireux de se piquer seul (auto-ponction)
- zone de ponction courte et/ou avec des difficultés pour espacer les points de ponctions.
- Patient algique lors des ponctions
- Allergie à l'EMLA
- hémostase > 10 min

Contre-indication absolue

- Pontage prothétique (Goretex)

Contre-indications relatives

- Dermite
- valvulopathie
- infection récurrente à Staphylocoque
→ **Place de la Mupirocin?**

Prophylaxie anti-staphylocoque?

Table 4. Follow-up times and SAB episodes before and after the introduction of the mupirocin cream prophylaxis start date (January 1, 2004)

	By Treatment Period ^a	As-Treated ^b
Preintervention		
follow-up time for entire cohort (years)	93.4	98.1
mean $\pm$ SD follow-up time in years per subject (range)	2.7 $\pm$ 1.7 (0.2 to 5.7)	2.7 $\pm$ 1.7 (0.2 to 5.7)
infection episodes	8	10
infection rate (events/1000 AVF-days)	0.23	0.28
Postintervention		
follow-up time for entire cohort (years)	193.5	188.6
mean $\pm$ SD follow-up time in years per subject (range)	4.3 $\pm$ 1.9 (0.4 to 5.4)	4.3 $\pm$ 1.9 (0.4 to 5.4)
infection episodes	2	0
infection rate (events/1000 AVF-days)	0.03	0
OR (95% CI) ^c	6.4 (1.3, 32.3)	35.3 (2.0, 626.7)
CHD controls		
follow-up time for entire cohort (years)	–	565.9
infection episodes	–	1
infection rate (events/1000 AVF-days)	–	0.005

^aFollow-up time on treatment calculated from January 1, 2004; infections attributed to study period.

^bFollow-up time on treatment calculated from actual intervention start date for subjects initially not adherent to study intervention ($n = 2$); SAB episodes attributed to intervention status—"as-treated" analysis.

^cOR as calculated by univariate logistic regression.

Nesrallah GE, Cuerden M, Wong JH, Pierratos A. Staphylococcus aureus bacteremia and buttonhole cannulation: long-term safety and efficacy of mupirocin prophylaxis. Clin J Am Soc Nephrol. 2010 Jun;5(6):1047-53. doi: 10.2215/CJN.00280110. Epub 2010 Apr 22. PMID: 20413438; PMCID: PMC2879300.

Expérience de l'ATIR: depuis mars 2022

- Délai médian depuis la création du buttonhole: 162,5 jours IQ [82- 187,75]
- Parmi nos 20 patients qui bénéficie actuellement de la technique **11/13** patients interrogés recommanderaient la technique car c'est **moins douloureux**
- **Aucune infection** liée à l'utilisation de la technique buttonhole à **ce jour**
- Utilisation de Mupirocin 2% pour les patients à haut risque (recommandation britannique)

Merci de votre attention