

Sheath

Desilets - Hoffman

1

2

: Desilets - Hoffman Sheath
가

가
: 168 (103 , 65 ; , 54.7 ; , 20.9)
7F Desilets - Hoffman Sheath
225
,
,
: 88.9% (200/225) 74.3 ± 35
3 63.1%, 6 44.2%, 1 26.3% . 4% (4
, 4 , 1) 13.7% (26 ,
4 , 1) .

: Desilets - Hoffman Sheath

가 (6).

Desilets - Hoffman Sheath

가 가
(1).

(2, 3).

가 .

가
Urokinase (pulse - spray
pharmacomechanical thrombolysis, PSPMT)

1998 10 2002 2

(Percutaneous

Transluminal Angioplasty, PTA) 1362

(2).

가

168

(3-5)

, Urokinase

(: 65:103, 14 - 79 (54.7))

가 .

39 2
, 2 27 , 3 9 , 4, 5, 6

가 1 225 .

가 (4)

4 가 , 2

1

2

2004 2 23

2004 6 2

Desilets - Hoffman Sheath

48 7 7 .

(Fig. 1A)

8 20.9 7F Desilets - Hoffman Sheath (COOK, Bloomington, IN, U.S.A.)

Table 1 .

(arterial steal symptom)

2 가

10 cc

3 - 4

Desilets - Hoffman Sheath(COOK, Bloomington, IN, U.S.A.) (Introduce (venous limb of graft) 가 가

Sheath) (side port) 가

5F cobra

(COOK, Bloomington, IN, U.S.A.) 0.035 - inch

(Terumo, Tokyo, Japan) cobra

가 5,000IU Heparin (

, ,) . 5F

7F

6 - 8 mm, 4cm PTA

(Ultra - thin Diamond, BlueMax; Boston Scientific, Natick, MA, U.S.A.)

30% 16 - 25 1 - 2

(Fig. 1C).

SIR guideline

(7). (arterial limb of graft)

(Fig. 1D,

A : 가 E).

B : 5F

C : 가 48 , 가

D : 가 48

가

E :

F :

(straight type graft)

- (cross - catheter technique) (Fig. 1A) (2, 3) , U - (U - loop graft) (apex puncture technique) (8)

U - 2 cm

Lidocaine (, ,)

21 gauge (COOK,

Bloomington, IN, U.S.A.)

Table 1. Type of Hemodialysis Graft

Artery-Vein	Number
Brachio-Brachial	63
Brachio-Basilic	41
Brachio-Cephalic	19
Brachio-Jugular	1
Radio-Basilic	17
Radio-Cephalic	15
Radio-Brachial	9
Ulnar-Basilic	1
Femoro-Femoral	1
Artery bypass*	1
Total	168

* brachio-brachial artery bypass

5F Fogarty (Baxter, Santa Ana, CA, U.S.A.)

Pethidine(Demerol; , ,) 50mg

1F). Fogarty PTA

(Fig.

가 Ticlopidine(Ticlodone; Sanofi -
Synthelabo Korea,)

(Fig. 1G).

(potassium) 7 mmol/L

1

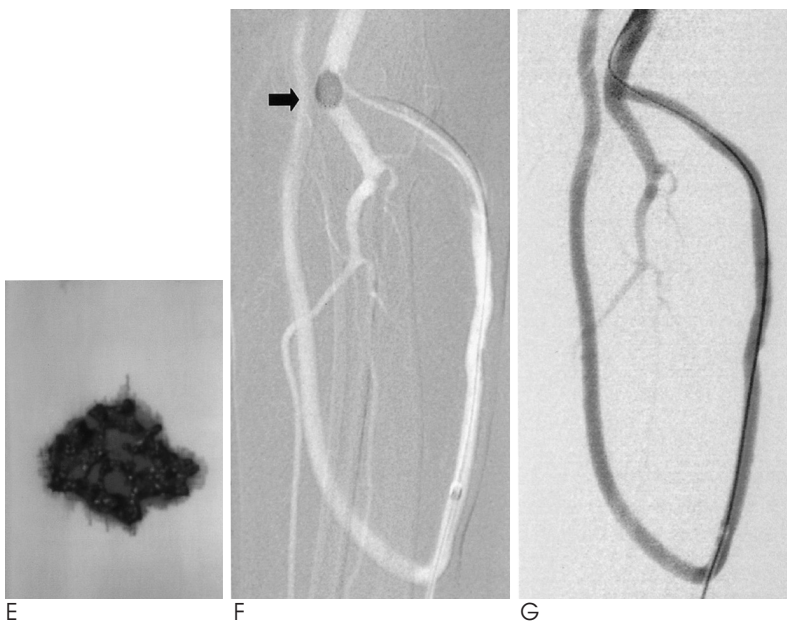


Fig. 1. Thromboaspiration with apex puncture technique in the brachio-basilic U loop graft.
A. Spot radiograph is obtained after performing apex puncture. It shows stasis of contrast agent and thrombus as filling defect.
B. Thromboaspiration is done with negative pressure of syringe through the Desilets-Hoffman Sheath in venous limb.
C. Fistulogram shows nearly complete removal of thrombus in the venous limb of the graft.
D. Direction of the Desilets-Hoffman Sheath is changed into the arterial limb. Thrombus is still remained after thromboaspiration at the proximal portion of the graft (arrow).
E. Aspirated thrombus from the graft.
F. Fogarty catheter is inflated with contrast media (arrow) at the brachial artery cross over the arterial anastomosis site. Thrombus at the proximal portion of the graft is removed with pullback technique.
G. Thrombus within the graft is completely removed and blood flow is well preserved after thromboaspiration.

Desilets-Hoffman Sheath

3

50%

211

225

200 (88.9%)

가 Urokinase

25 10

가

가

5

4

3

Kaplan - Meier

1

2

1

method

20 - 240 (

:74.3)

PTA

40 (17.8%)

9

가 Student t - test

(4%)

가

가

가

(r)

(p - value)

4

4

1

6 cm, 1

4 cm

6 mm

168

225

211

50%

8

25

11

10 mm Wallstent (Boston Scientific, Natick, MA, U.S.A.)

Niti - S Stent (, ,)

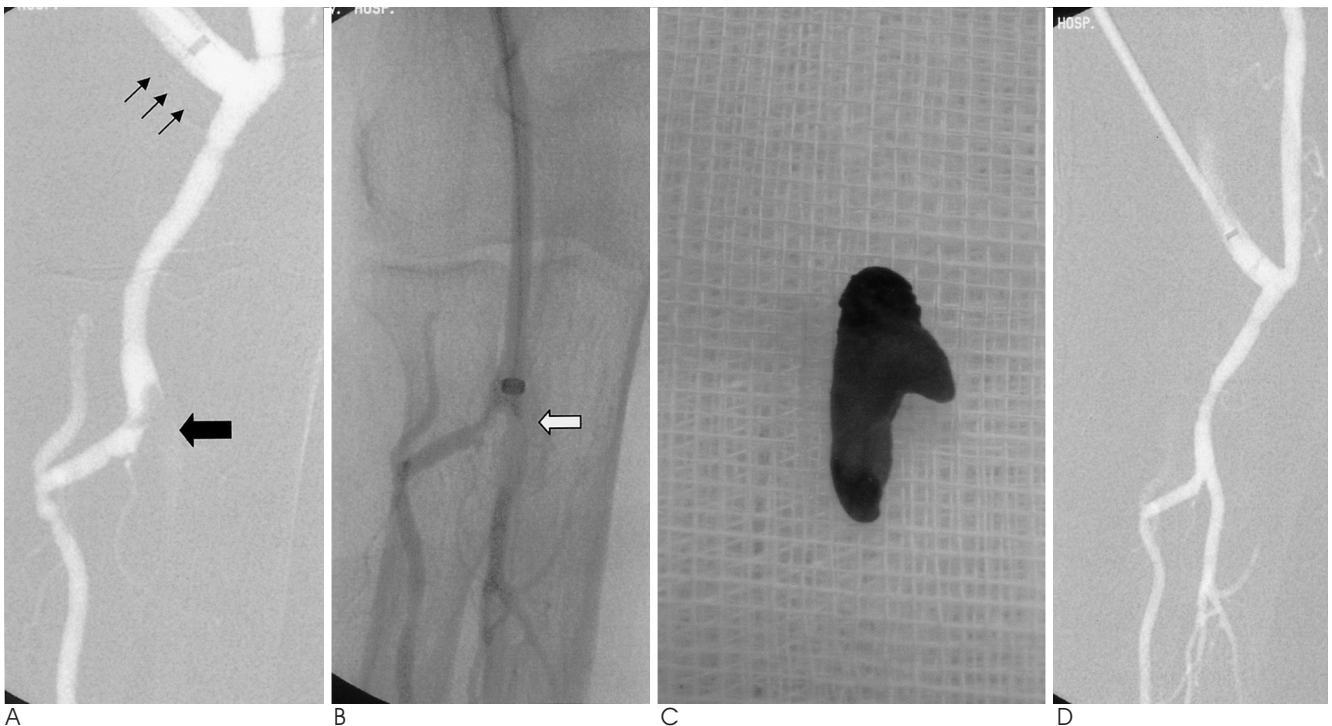


Fig. 2. Thrombus migration into the brachial artery during thromboaspiration.
 A. Migrated thrombus is seen at distal brachial artery (arrow) from the graft (small arrows).
 B. Desilets-Hoffman Sheath (arrow) is advanced into the brachial artery for aspiration of migrated thrombus.
 C. Aspirated thrombus from the artery is arterial plug.
 D. Migrated thrombus is completely removed in final arteriogram.

4 1 -

가 1 가

2

가 1 Heparin

Desilet - Hoffman Sheath (Fig. 2).

가 가 3 mm microcoil (COOK, Bloomington, IN, U.S.A.) 2

31 (13.8%) 26

가 4 , 가 1

5 3-4

4 가

가

4

3-5

가

aneurysm 1

24 2 (1%) , 1

1 27 (12%)

PTA

(Table 2).

1 38 9.4 , 3, 6, 12, 24 (primary patency rate) 63.1, 44.2, 26.3, 9.7% 2 83.5, 80.1, 75.9, 39.8% (Fig. 3).

($r=0.056$), ($p=0.543$)

Table 2. Comparison of Early (within 1 month) and Late Restenosis

	Early restenosis (n = 27)	Late restenosis (n = 198)	p-value
AVF duration (Mo)	15.2 ± 15.5	20.5 ± 16.1	0.129
Stenosis degree (%)	80 ± 23	85.3 ± 13.9	0.123
Stenosis length (cm)	2 ± 16	2.1 ± 2.2	0.904
Dilatation degree (%)	91.7 ± 12.6	89.3 ± 14.6	0.431

가 가 (5, 9) Urokinase

Urokinase PSPMT (4).

1

Heparin

PSPMT (10), assisted mechanical thrombectomy, (3) 가 (balloon BAT) (11), 가

BAT 가 가

Winkler (12) 가 3.2 mL, 3.4 g

25% (Hematocrits) 20 - 30%

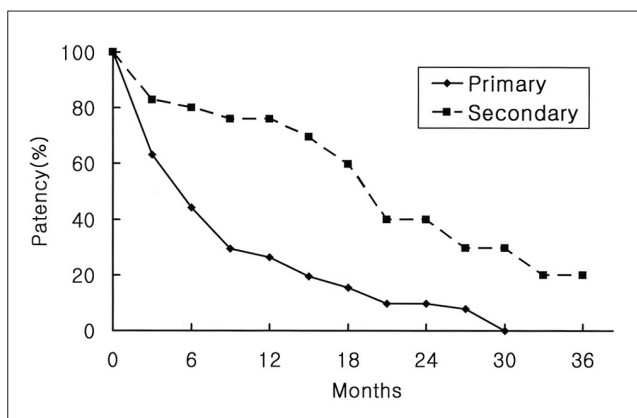


Fig. 3. Primary and secondary patency rate of the graft after thromboaspiration with Kaplan-Meier method

Table 3. Results of Thrombolysis / Thrombectomy in Graft Thrombosis of Hemodialysis Access

A-T : Arrow-Trerotola thrombectomy device
 BAT : balloon assisted thrombectomy
 PSPMT : pulse-spray pharmaomechanical thrombectomy
 HST : Hoffman Sheath thromboaspiration
 ND : no data

PSPMT 2%(16) . U -
17.8% 85%

Urokinase Fogarty
(\$70) 가

(24).

4 (1.7%)
PSPMT

가

가

가 BAT (lung Hoffman Sheath
가 Urokinase

perfusion scan) 53% ,

(25), Amplatz PTA
가

, Uflacker (5) Amplatz Fogarty ,

. Trerotola Urokinase
PSPMT 91%, 18%

(19).
가 가

(foramen ovale)
가

(paradoxical embolism) 가 1800
128 가 (26).

3

Cooper (6) 18 Amplatz
10
가

가 가

. Hydrodynamic device
Fogarty (27).

가

가 PTA
. 4
가

가 1998 (4)
Amplatz 가 \$550, Angiojet \$900, Cragg brush \$400
Urokinase 가 가 , PSPMT
Urokinase \$600
(Desilets - Hoffman sheath), PTA
Fogarty Urokinase

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Usefulness of Thromboaspiration with Desilets-Hoffman Sheath in Thrombosed Hemodialysis Access Graft¹

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Purpose: The purpose of this study was to evaluate the feasibility, efficacy and safety of percutaneous thromboaspiration with a Desilets-Hoffman Sheath compared with the previously established percutaneous mechanical thrombectomy technique in cases of occluded dialysis graft.

Materials and Methods: One hundred and sixty eight patients (103 women, 65 men; mean age, 54.7 years; mean graft age, 20.9 months) with 225 episodes of dialysis graft thrombosis underwent percutaneous thromboaspiration with a 7F Desilets-Hoffman sheath using the crossing catheter or single puncture technique. The technical success rate, procedure time, and complication and patency rates were analyzed.

Results: Technical success was achieved in 200 of the 225 procedures (88.9%). The average duration of the intervention was 74.3 ± 35 minutes. The primary patency rate was 63.1% at 3 months, 44.2% at 6 months and 26.3% at 1 year. Major complications occurred in 4% of the cases (4 venous ruptures; 4 arterial embolisms; 1 arterial rupture) and minor complications occurred in 13.8% of the cases (26 minor venous ruptures; 4 intra-graft ruptures; 1 venous dissection). These results were quite similar to those obtained with the previous mechanical thrombectomy technique.

Conclusion: Percutaneous thromboaspiration of occluded dialysis grafts with a Desilets-Hoffman Sheath is an effective and safe method.

Index words : Dialysis

Grafts, thrombosis

Grafts, Interventional procedures

Thrombectomy

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