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Initial Experience of Rheolytic Thrombectomy for Acute Thrombotic Lesions in Peripheral Vascular Disease

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Background: The rheolytic thrombectomy are recently introduced for the treatment of acute thrombosis in peripheral lesions in Korea. The AngioJet (MEDRAD, Warrendale, PA, USA) is a dual lumen catheter that uses the principle of the Bernoulli principle to capture, fragmentate and remove unorganized thrombus. We experienced 10 cases with rheolytic thrombectomy and report them.

Methods: This is a retrospective review from prospectively registered data base of the patients who underwent rheolytic thrombectomy with AngioJet from Nov 2011 to July 2013. The patients' clinical characteristics and procedure was reviewed and summarized.

Results: Ten cases were enrolled. The mean age was 59.7 year old and five were male. There were 3 cases for acute arterial thrombosis(emboli from atrial fibrillation, acute on chronic peripheral vascular disease, acute thrombosis of femoral stent with instent restenosis), 5 cases for acute iliofemoral deep vein thrombosis with May Thurner's syndrome, 2 cases for acute mesenteric venous ischemia. There was no mortality. Technical success rate was 90%. There were 1 distal embolization, 3 hemoglobinuria, and 1 stent occlusion. For all the arterial lesions, stentings were needed. Two cases needed additional thrombolysis due to incomplete thrombectomy and four cases needed iliac vein stenting for venous cases. There were 3 additional thrombolysis. The operating time for AngioJet was about 5minutes while the mean procedure time was 116minutes.

Conclusion: The rheolytic thrombectomy using AngioJet showed good results in acute thrombosis in the peripheral lesions and can be considered as an useful alternative option to open thrombectomy or thrombolysis.

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Clinical Outcome After Endovascular Treatment for Popliteal Artery

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Background: Since TASC II revision, indication of EVT for lower limbs has been expanded. However, the efficacy of the EVT for non-stent zone and complicated lesions like popliteal artery has not fully investigated.

Purpose: To clarify the clinical outcome of EVT for popliteal artery lesion in the mid-term settings.

Methods: From April 2004 to March 2013, consecutive 97 lesions of 66 cases (including 44 CTOs and 53 non-CTOs) of EVT for popliteal artery were sought retrospectively. We excluded the contiguous lesions with the superficial femoral artery and lesions of thrombotic occlusion or aneurysmal rupture. Lesion stenosis was evaluated just before and after the EVT procedure by cineangiogram with the operators' discretion. We re-evaluated the EVT lesions after a year later by duplex ultrasound or angiogram as well as ABI measurement. In addition, we investigated the relationship between the mid-term clinical outcome and the number of BK (below-the-knee) run-offs at the end of procedures.

Results: Acute procedural success was obtained in 98% lesions. Balloon angioplasty alone was performed for 90 lesions (95%), and stent implantation was required 5 lesions (5%) due to inadvertent vessel dissection with severe flow limit. One-year follow-up was accomplished in 83% (79/95). Overall restenosis rate was 46% (36/79). Especially, restenosis rate was significantly higher in CTOs than non-CTOs(60.0% vs. 34.1% p=0.021). The number of BK run-off at the end of the procedure demonstrated a trend of inverse relationship with the incidence of mid-term restenosis rate (BK run-off: 54.8%(→1 vessels) vs. 35.1%(→2 vessels) p=0.08). With regard to five stent lesions, we found the restenosis occurred in two lesions. There was no difference in lesion characteristics except the deployment site in the popliteal artery. Thus, the stent was deployed in the middle of the popliteal artery that corresponded to the hinge point with the bend of the knee joint. As for the rest of 3 cases free from restenosis, stents were deployed more proximally sparing the hinge point.

Conclusion: Restenosis rate of EVT for the popliteal artery was 46% within 12 months. Especially, CTO lesions demonstrated higher restenosis rate than non-CTO lesions. Based on the present study, the number of BK run-off yields a trend of inverse relationship with the incidence of restenosis, though no significant difference was demonstrated. Further, the stenting technique sparing the hinge point of popliteal artery may contribute to the reduction of restenosis of this "non-stent zone".

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Impact Factors of Distal Stent Graft Induced New Entry in Type B Aortic Dissection

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Background: Stent graft-induced new entry (SINE) is a major complication after thoracic stent graft implantation in aortic dissection. This devastating complication

may cause pseudoaneurysm with possible lethal rupture. Here, we retrospective analysed our patients receiving stent graft for complicated type B aortic dissection and tried to find the impact factors of SINE.

Methods: From November 2006 to July 2012, 84 patients received thoracic stent graft implantation +/- cervical bypass due to complicated type B aortic dissection in our institute. 73 of them had regular post-operative follow up more than 1 year and then were included in our study. 49 of 73 patients received stent graft implantation as sequence with proximal deployment first and then distal deployment (proximal first group). The other 24 of 73 patients received stent graft implantation as sequence with distal deployment first and then proximal deployment (distal first group). 16 of 49 patients in proximal first group and 1/17 patients in distal first group developed distal SINE. We chose 5 items, including longitudinal, transverse and mean diameters, circumference and area of the true lumen as characters. And we measured these 5 items at proposed proximal and distal landing zones, and the distal stent graft before and after procedure. With these items, we calculated the taper ratio, pre-stent grafting and post-stent grafting oversizing ratio and expansion mismatch ratio of distal true lumen to evaluate the possible impact factors of distal SINE.

Results: The incidence of distal SINE reached significant difference between group of proximal deployment first and distal deployment first (p=0.007). In each group, all the calculated ratios had no significant difference. When comparing between two groups, there was much significant difference in the pre-stent grafting and post-stent grafting oversizing ratio in diameters, circumference and area. (p<0.001)

Conclusion: We found that too much oversizing at distal landing zone should be avoided to decrease the possibility of distal SINE. Besides, thoracic stent graft implantation as sequence with distal deployment first and then proximal deployment should be executed if possible.

variables	Proximal first	Distal first	P
	M(SD)	M(SD)	
Taper ratio			
Long diameter	0.19 ± 0.15	0.18 ± 0.16	0.77
short diameter	0.60 ± 0.22	0.61 ± 0.16	0.81
Mean diameter	0.39 ± 0.15	0.40 ± 0.12	0.99
area	0.66 ± 0.21	0.66 ± 0.17	0.98
circumference	0.34 ± 0.14	0.75 ± 0.04	<.001*
PreGo			
Long diameter	0.39 ± 0.24	0.05 ± 0.22	<.001*
Short diameter	2.46 ± 1.73	1.38 ± 0.71	<.001*
Mean diameter	0.89 ± 0.41	0.42 ± 0.26	<.001*
area	3.67 ± 2.57	1.39 ± 0.90	<.001*
circumference	0.69 ± 0.31	0.29 ± 0.23	<.001*
PostGo			
Long diameter	0.19 ± 0.21	-0.02 ± 0.16	<.001*
Short diameter	1.44 ± 1.09	0.84 ± 0.65	0.005*
Mean diameter	0.50 ± 0.34	0.22 ± 0.24	<.001*
area	1.82 ± 1.39	0.77 ± 0.83	<.001*
circumference	0.37 ± 0.27	0.12 ± 0.24	<.001*
Mismatch			

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Chronic Ostial-proximal Common Iliac Arteries Stenosis or Occlusions Treated with One Stage Contemporary Delivering of Two Iliac Stents

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Background: Something about 12% of the population is affected with peripheral vascular disease (PAD). This percentage is markedly increased in special subgroups, like those with multiple risk factors or with known coronary or cerebral artery disease. About 16% of patients affecting from PAD have aorto-iliac disease and according to the literature have a poorer general prognosis than those with more distal PAD Trans-Atlantic Inter-Society Consensus (TASC IIa) lesions involving iliac arteries are best treated with endovascular therapy and surgery is reserved only if PTA is unsuccessful. Endovascular stents have become an accepted therapy for patients with iliac occlusive disease. They have been associated with symptomatic improvement and a greater than 90% patency rate.

Methods: In the region of Yambol (south-eastern Bulgaria) from the beginning of 2012 we organise an interdisciplinary team with participation of Italian specialists for early clinical and non-invasive diagnosis, hospitalization for interventional or surgical treatment and consequence clinical follow-up of the patients affected with PAD. The core of the team consists of interventional cardiologist, vascular surgeon and the patient general practitioner. Any decision for treatment either surgical or interventional was done in complete consensus between the surgeon and the interventional cardiologist.

From January 2012 to July 2013 we had 6 patients (4 males 66.7%, mean age 68,3 y) with bilateral ostial-proximal stenosis or ostial occlusions of both common iliac arteries (Fig 1a). Two of them have had total ostial occlusions of both iliac arteries (Fig.1.a) and the rest 4 (66%) have had severe ostial stenosis of both common