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Clinical experiences of banding technique on high flow vascular access, arm swelling and steal syndrome.

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Objectives : Recurrent pulmonary edemas due to high-flow vascular access (VA), arm swelling due to refractory central vein stenosis or dialysis-associated steal syndrome are serious complications requiring a flow reduction technique. We adopted banding procedure with several modifications to control the high blood flow and steal syndrome during VA procedures. We retrospectively assessed the outcome of this procedures.

Methods : Five patients with recurrent pulmonary edema due to high-flow VA, 9 patients with arm swelling associated with refractory central vein stenosis, and two patients with steal syndrome (with pain, coldness, or cyanosis) were treated using the banding method. Flow volume of the brachial artery was monitored before and after banding procedures using Doppler ultrasonography. In clinical success rates (decreased frequencies of pulmonary edema, improvement of edema, or improvement of hand ischemia), technical success rates (reduction of fistula lumen, flow volume), procedure complications and patencies of fistula were examined.

Results : In total group, the mean access blood flow (Qa) decreased from 1751.8 ± 561.3 ml/min (mean \pm SD) to 868.1 ± 238.5 ml/min ($p=0.001$). the technical success rates were 100 %. The clinical success rates (100%, recurrent pulmonary edema, 77.8 % arm edema, and 100% in steal syndrome). No complications developed. The secondary patency rates at 12, 24 months were 100.0 % and 85.7 %, respectively.

Conclusions : The banding procedure is effective to treat high flow VA, arm edema and steal syndrome.

Keywords : Dialysis-associated steal syndrome, High-flow access, Heart failure, MILLER banding,