

Management of Chronic Deep Vein Obstruction

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Introduction

Acute venous thrombosis induces outflow obstruction, and acute inflammatory response in obstructed and adjacent venous trees. Outflow obstruction makes thrombus organization, collateral venous circulation, and inflammatory response makes venous wall/venous valve damage, and reflux. Two phenomenon induces chronic venous hypertension, and post-thrombotic syndrome (PTS) including hyperpigmentation, telangiectasia, venous ectasia, secondary varicose veins, edema, lipodermatosclerosis, ulceration. This is typical pathology of chronic deep vein obstruction (CDVO). The classical treatment modalities for proximal, chronic deep vein thrombosis (DVT), PTS including May-Thurner Syndrome were long-term anticoagulation, elastic stocking, and physical rehabilitation. Surgical therapy, venous bypass has been used for medically intractable case of CDVO. Catheter based therapies, including percutaneous catheter directed thrombolysis (PCDT) or stenting for iliac vein are emerging for these patients of CDVO, instead of surgical procedures.

Body

There are several kinds of severity description scales for CDVO, especially PTS. Villalta scale, CEAP classification, Brandjes scale, and revised VCSS usually used to evaluate initial status and post-treatment follow up. Initial diagnostic tool for CDVO is the compression ultrasonography. It can screen patients with suspicion of DVT with lack of compressibility of popliteal or common femoral vein (CFV) or reflux of venous valves on continuous-wave Doppler. Imaging of the iliac vein using

cross-sectional modalities (CT, MR venography) would give intraluminal and extraluminal features of CDVO. Invasive venography is essential to make diagnosis and plan to decisive treatment. Recently, intravascular ultrasound (IVUS) have shown potential benefit to precise diagnosis for local lesion, including focal stenosis, thrombosis, valve malfunction, and provide better information to select stent size, and coverage area. Catheter based therapies, including continuous infusion of thrombolytic agents using multihole catheter into intrathombus, balloon angioplasty, stenting were more frequently used than ever, those therapies showed better primary patency, recovering venous valvular function, lesser incidence of PTS, improving severity of PTS, and better quality of life in CDVO patients compared to long-term anticoagulation, compression stocking. There are very limited data about comparing efficacy or safety between venous bypass and stenting procedure in CDVO population. Recently, venous dedicated stents were invented and introduced into daily practice, they have shown better efficacy compared to old types of stents.

Conclusion

CDVO has very diverse clinical features and manifestation. Incidence and prevalence of CDVO is usually underestimated, because of their ambiguity of symptoms and negligence of clinicians. Careful considerations should be given to discover CDVO patients, especially in patients with leg heaviness, swelling and venous claudication. According to level, and severity of CDVO patients, selection of tools for diagnosis and treatment modalities should be personalized. Percutaneous intervention including stent therapy should be considered in the case of proximal level occlusion, long term, and severe cases with PTS.