

## Management of Caverno-Venous Leakage: A Series of 133 Patients with Symptoms, Hemodynamic Workup, and Results of Surgery

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**Abstract :** Background: Caverno-venous leakage (CVL) is devastating, although barely known disease, the first cause of major physical impairment in men under 25, and responsible for 50% of resistances to phosphodiesterase 5-inhibitors (PDE5-I), affecting 30 to 40% of users in this medication class. In this condition, too early blood drainage from corpora cavernosa prevents penile rigidity and penetration during sexual intercourse. The role of conservative surgery in this disease remains controversial. Aim: Assess complications and results of combined open surgery and embolization for CVL. Method: Between June 2016 and September 2021, 133 consecutive patients underwent surgery in our institution for CVL, causing severe erectile dysfunction (ED) resistance to oral medical treatment. Procedures combined vein embolization and ligation with microsurgical techniques. We performed a pre-and post-operative clinical (Erection Harness Scale: EHS) hemodynamic evaluation by duplex sonography in all patients. Before surgery, the CVL network was visualized by computed tomography cavernography. Penile EMG was performed in case of diabetes or suspected other neurological conditions. All patients were optimized for hormonal status—data we prospectively recorded. Results: Clinical signs suggesting CVL were ED since age lower than 25, loss of erection when changing position, penile rigidity varying according to the position. Main complications were minor pulmonary embolism in 2 patients, one after airline travel, one with Factor V Leiden heterozygote mutation, one infection and three hematomas requiring reoperation, one decreased gland sensitivity lasting for more than one year. Mean pre-operative pharmacologic EHS was 2.37+/-0.64, mean pharmacologic post-operative EHS was 3.21+/-0.60,  $p < 0.0001$  (paired t-test). The mean EHS variation was 0.87+/-0.74. After surgery, 81.5% of patients had a pharmacologic EHS equal to or over 3, allowing for intercourse with penetration. Three patients (2.2%) experienced lower post-operative EHS. The main cause of failure was leakage from the deep dorsal aspect of the corpus cavernosa. In a 14 months follow-up, 83.2% of patients had a clinical EHS equal to or over 3, allowing for sexual intercourse with penetration, one-third of them without any medication. 5 patients had a penile implant after unsuccessful conservative surgery. Conclusion: Open surgery combined with embolization for CVL is an efficient approach to CVL causing severe erectile dysfunction.

**Keywords :** erectile dysfunction, cavernovenous leakage, surgery, embolization, treatment, result, complications, penile duplex sonography

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