



CLINICAL IMAGE

Thulium laser coagulation for venous malformations of glans penis



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Vascular anomalies of the glans penis are very uncommon and have a sparse mention in the literature [1–3]. Nd: YAG laser has been mentioned as a treatment of choice [3]. The thulium laser has not been reported for its use till date. We describe a patient of venous malformation (VM) of the glans penis treated by us with the thulium laser.

A 23-year-old male patient presented with soft, blue masses on the corona glandis since birth (Fig. 1A and B). One mass was also present on the right margin of the external meatus. These masses were non pulsatile and compressible; suggestive of venous malformations. There was no history of pain, bleeding or narrowing of urinary stream. The patient sought treatment for aesthetic reasons. The VMs appeared thin walled and vulnerable to rupture at the slightest of friction or trauma as is expected during intercourse. Evaluation with Duplex ultrasonography and pelvic MRI confirmed that the VMs were confined to the glans penis only. There were no associated genitourinary anomalies.

Treatment selection was a delicate issue in view of age of the patient and location of the masses. Any surgical procedure had the danger of potential complications like haemorrhage, loss of tissue, scarring with resultant hypoaesthesia and deformity. We applied the 120 W thulium laser coagulation for treating these VMs. Under penis truncal anaesthesia, a circumcision was done and the VMs were laser coagulated with end firing thulium fibre. We used low intensity, i.e., 10–12 W of 2013 micron thulium

laser (Revolix 120 W machine by Lisa laser Products, Katlenburg-Lindau, Germany) with the total energy amounting to 3882 J applied to the VMs externally in small bursts of 2–3 s. At the end of treatment the VMs shrunk considerably and collapsed completely. There was no engorgement or refilling observed on artificial erection which indicated successful obliteration of the VMs. Post laser care comprised of daily application of topical neosporin ointment and oral antibiotics for 5 days. Convalescence was smooth without any evidence of infection or haemorrhage. He was given one more treatment session at 2 months interval as a preventive measure. Patient and his parents were satisfied with the outcome.

At 2 years of follow-up there was no recurrence and the area healed without any scarring or hypoaesthesia (Fig 1C). The urethral meatus did not suffer any stenosis or retraction in the healing process. His erectile function was well preserved and there were no episodes of bleeding or pain reported by him.

Vascular malformations of the urogenital tract are very rare and those located on the glans penis are still more uncommon [1–5]. They progressively worsen and do not regress [3]. Treatment of VMs of the glans is currently controversial [2]. Many theories have been put up to explain the aetiology. Some investigators suggest that the VMs should be considered as vascular neoplasms or congenital malformations formed due to persistence of embryonic tissue remnants which failed to involute [3,6]. Others believe that these could be produced by herniation of the cavernous body tissue or that they could grow through the revascularisation of a previous penile hemangioma [2]. The diagnosis is profoundly clinical and is confirmed by duplex ultrasonography or MRI. There often

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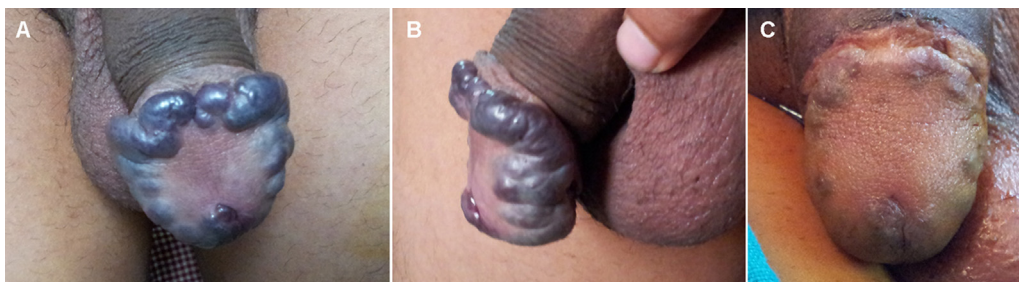


Fig. 1 Venous malformation of the glans. (A) and (B): preoperative images; (C): 1 year after thulium laser surgery.

exists a continuity between the VMs and the cavernosal bodies which may pose major therapeutic challenges.

Various modalities of treatment that have been successfully tried include surgical excision, cryosurgery, intralesional sclerotherapy and Nd: YAG lasers [2–4]. Surgical excision may result in bleeding and poor healing. For lesions located near the meatus as in this case, meatal retraction may ensue. Sclerotherapy may be used alone or as a presurgical step to downsize the VM [3]. Several lasers like the CO₂, argon and diode also have been used in the past. However their use was limited due to high incidence of side effects. Some authors have suggested that Nd: YAG laser should be the first choice of treatment [1,2]. It acts by causing coagulation necrosis upto a depth of 4–6 mm from the surface. However it has to be used cautiously because even with standard power settings and precautions, the coagulation necrosis can extend deeper than the desired range leading to complications and adverse outcomes [3]. A combination of two lasers, i.e., 595 nm PDL and 1064 Nd: YAG, has also been tried with excellent cosmetic and functional results [3]. The thulium laser has never been used in treatment of VMs of the glans before. Its haemostatic properties make it an ideal choice for treatment of vascular lesions. The depth of penetration is restricted to 0.4 mm (400 µm from the surface). It is a continuous laser with constant amplitude. Thus it has a precise and controlled interaction with the target tissue [4]. These features of the thulium laser ensure an aesthetically good outcome especially for lesions of the glans penis which has

a tendency to poor healing and the urethral meatus which may retract as a result of scarring.

In conclusion, thulium laser is an easy and effective means of treatment for VMs of the glans penis. The excellent cosmetic results and the absence of complications, as is evident in this case justifies its use. However additional controlled studies would be necessary to validate the efficacy and to establish optimal treatment guidelines.

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