Endovenous Laser Ablation and Sclerotherapy in the Treatment of Varicocele

Author: Dr. Javid Ahmadov[1], Dr. Tural Hasanov[1], Dr. Ashraf Hasanzadeh[1]

[1] Baku Health Center, Azerbaijan

Relevance

Varicocele is a pathological dilation of the pampiniform plexus veins, leading to impaired venous drainage and potential reduction of fertility. Traditional treatment options include open, laparoscopic, and microsurgical techniques, as well as interventional methods such as coil embolization or liquid sclerosant injection. With the development of minimally invasive technologies, endovenous laser ablation (EVLA) has gained interest as an alternative and potentially safer method for treating varicocele.

Aim of the Study

To assess the feasibility and effectiveness of endovenous laser ablation in the treatment of varicocele, as well as to evaluate clinical outcomes and tolerability of the method.

Materials and Methods

- The study included 13 patients with grade 3–4 varicocele (ages 18–35, mean age 24 years).
- A percutaneous intervention under local anesthesia was performed via the right common femoral vein.
- The following equipment and materials were used:
    - Biolithec 1470 nm Lazer Fiber 5 W power
    - 3% Etisklerol as a sclerosant
- Procedure duration: 40–50 minutes.
- Post-operative management: 24-hour hospitalization; 1 week of oral analgesics and antibiotics.
- Follow-up examinations at 1 week, 1 month, 3, 6, and 12 months using Doppler ultrasound.
- Pain intensity was assessed using the Visual Analog Scale (VAS).

Results

- Technical success — 100% (procedure was successfully completed in all patients).
- The procedure demonstrated short duration and minimal invasiveness.
- The method showed promise in reducing recurrence risk and lowering the intensity of pain.
- It demonstrated higher cost-effectiveness compared with coil or liquid embolization.
- A larger patient cohort is required to establish clinical efficacy and long-term outcomes.

Conclusions

Endovenous laser ablation combined with sclerotherapy is a promising, minimally invasive, and cost-effective technique for the treatment of varicocele. The procedure demonstrates a high rate of technical success and good tolerance. Additional studies with larger sample sizes are necessary to confirm long-term clinical effectiveness.