

Surgical Treatment of Varicocele Via the Subinguinal Approach in Infertile and Symptomatic Patients: A Series of 10 Cases

C. Mukamarakiza^{1*}, M. Diallo¹, S. Ndayikengurutse¹, R. Ouaddane Alami¹, S. Mellas¹, J. El Ammari¹, M.F. Tazi¹, M.J. Fassi¹

¹Department of Urology, Hassan II University Hospital Center in Fez, Sidi Mohammed Ben Abdellah University, Morocco

DOI: <https://doi.org/10.36347/sjmcr.2026.v14i10.004>

| Received: 10.07.2026 | Accepted: 22.09.2026 | Published: 02.10.2026

*Corresponding author: C. Mukamarakiza

Department of Urology, Hassan II University Hospital Center in Fez, Sidi Mohammed Ben Abdellah University, Morocco

Abstract

Case Report

A varicocele is defined as an anormal dilation of the veins of the pampiniform plexus. Diagnosis is clinical and is performed with the patient lying down and standing, as well as during the Valsalva maneuver. An inguinal-scrotal Doppler ultrasound and a semen analysis are generally performed to confirm the diagnosis. The most common reason for seeking medical care is intermittent scrotal pain in young adults and primary and secondary infertility in couples. Various studies have shown that surgery can improve sperm quality and fertility in initially infertile patients and resolve scrotal pain in young adults. Varicocele treatment can be performed surgically or via percutaneous embolization. However, only symptomatic varicoceles and those associated with abnormal semen analysis results require treatment. The subinguinal microdissection approach is increasingly preferred. Our study aims to evaluate the benefits of subinguinal varicocele treatment in infertile, symptomatic patients diagnosed with varicocele at the urology department of the Hassan II University Hospital Center in Fez.

Keywords: Male infertility - Varicocele - Semen analysis.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Varicocele is one of the most common andrological conditions observed in young adults and is the most frequent curable cause of male infertility [1]. It is a vascular condition characterized primarily by abnormal dilation of the pampiniform venous plexus [2]. The diagnosis is generally clinical and is confirmed by scrotal Doppler ultrasound and semen analysis. The prevalence of varicocele is estimated at 20% in the general male population, 35% in men with primary infertility, and up to 80% in men with secondary infertility [3].

The underlying mechanism of varicocele is abnormal venous reflux caused by an obstruction of venous return or valvular insufficiency. This reflux causes scrotal heat, oxidative stress, and cellular apoptosis, ultimately leading to progressive testicular atrophy, decreased sperm quality, and impaired testosterone synthesis [4]. In patients with significant symptoms or abnormal semen parameters, surgery is considered the first-line treatment [5]. Furthermore, a recent meta-analysis confirmed that surgical treatment of a clinical varicocele in an infertile man was associated with a significant improvement in semen analysis

parameters and led to increased pregnancy rates among couples [6].

Varicocele is treated surgically via an inguinal approach or by percutaneous embolization.

We report a case series of patients who presented with primary and secondary infertility, as well as others who presented with intermittent scrotal pain and abnormal semen analysis results in both groups. A diagnosis of varicocele was confirmed, and these patients underwent varicocele repair and were prescribed a dietary supplement to promote spermatogenesis.

The objective of our study is to evaluate the efficacy of microsurgical subinguinal varicocele repair in cases of male infertility or inguinal-scrotal pain at the urology department of Hassan II University Hospital in Fez.

CASE PRESENTATION

Our study is a descriptive, retrospective study conducted over a 12-month period (January–December 2025) and including all patients with a symptomatic

Citation: Mukamarakiza, C., Diallo, M., Ndayikengurutse, S., Ouaddane Alami, R., Mellas, S., El Ammari, J., Tazi, M. F., & Fassi, M. J. (2026). Surgical Treatment of Varicocele Via the Subinguinal Approach in Infertile and Symptomatic Patients: A Series of 10 Cases. *Sch J Med Case Rep*, 14(10), 2129-2130. <https://doi.org/10.36347/sjmcr.2026.v14i10.004>

clinical varicocele and those who sought care for infertility with abnormal semen analysis results.

This series comprised 10 patients, including 4 young patients who presented with intermittent scrotal pain and 6 young adults who presented for evaluation of infertility.

All patients underwent a semen analysis and a scrotal Doppler ultrasound.

The scrotal Doppler ultrasounds confirmed the varicocele, and the semen analyses showed abnormalities. All patients underwent varicocele repair via an inguinal approach and were placed on dietary supplements for 3 months. The patients were followed up in clinic after 6 months with follow-up semen analyses. Scrotal Doppler ultrasounds were repeated for patients whose semen analyses had not improved, and among them, one patient was found to have associated cryptorchidism.

Of the 4 young patients who were initially symptomatic, 3—or 75%—had normal sperm analyses, and their scrotal pain had resolved. And of the 6 young adults who had sought care for infertility, 4—or 66%—had normal sperm analyses and were able to have children. Patients whose semen analysis results had not improved were kept on dietary supplements.

DISCUSSION

Varicocele is a vascular condition characterized primarily by abnormal dilation of the pampiniform venous plexus [7]. The most common reason for seeking medical care is intermittent scrotal pain, but it may also be due to infertility in the couple. The diagnosis is clinical and is confirmed by scrotal Doppler ultrasound and a semen analysis. In patients with significant symptoms or abnormal semen parameters, surgery is considered the first-line treatment [8].

In most cases, surgical treatment of varicocele allows for the preservation or even restoration of normal, permanent fertility [9].

In the literature, most studies have shown a significant increase in sperm concentration and motility following surgical treatment of varicocele [10]. Microsurgical repair of varicoceles via a subinguinal approach is the standard technique according to the recommendations of the AFU Committee on Andrology and Sexual Medicine [11].

CONCLUSION

Our study confirms that microsurgical subinguinal varicocele repair is an effective therapeutic strategy for treating a clinically symptomatic varicocele or one that causes fertility problems.

Surgical treatment of varicocele has led to a significant increase in the concentration and percentages of motile and morphologically normal spermatozoa in infertile patients with abnormal semen analyses, thereby increasing the likelihood of pregnancy in infertile couples.

REFERENCES

1. K. Karademir, T. Senkul, K. Baykal, F. Ates, C. Iseri, D. Erden: Evaluation of the role of varicocelectomy, including external ligation of the spermatic vein, in patients with scrotal pain. *Int J Urol*, 12 (5) (2005), pp. 484–488.
2. Arya D, Balasinor N, Singh D. Male infertility associated with varicocele: cellular and molecular perspectives on pathophysiology. *Andrology*. 2022;10:1463-83. doi: 10.1111/andr.13278. [DOI] [PubMed] [Google Scholar].
3. RD Kursh. What is the incidence of varicocele in a fertile population? *Fertil Steril*, 48 (3) (1987), pp. 510–511.
4. Clavijo RI, Carrasquillo R, Ramasamy R. Varicoceles: prevalence and pathogenesis in adult men. *Fertil Steril*. 2017;108:364–9. doi: 10.1016/j.fertnstert.2017.06.036. [DOI] [PubMed] [Google Scholar].
5. Sandlow J. Pathogenesis and treatment of varicoceles. *BMJ*. 2004;328:967–8. doi: 10.1136/bmj.328.7446.967. [DOI] [Free PMC Article] [PubMed] [Google Scholar].
6. A. Baazeem, E. Belzile, A. Ciampi, G. Dohle, K. Jarvi, A. Salonia, *et al.*, Varicocele and the treatment of male infertility: a new meta-analysis and review of the role of varicocele repair *Eur Urol*, 60 (4) (2011), pp. 796–808
7. Arya D, Balasinor N, Singh D. Male infertility associated with varicocele: cellular and molecular perspectives on pathophysiology. *Andrology*. 2022;10:1463–83. doi: 10.1111/andr.13278. [DOI] [PubMed] [Google Scholar]
8. Sandlow J. Pathogenesis and treatment of varicoceles. *BMJ*. 2004;328:967–8. doi: 10.1136/bmj.328.7446.967. [DOI] [Free PMC Article] [PubMed] [Google Scholar]
9. Practice Committee of the American Society for Reproductive Medicine. Report on varicocele and infertility. *Fertil Steril* 2006;86(5): S93–5.
10. Marmar JL, Agarwal A, Prabakaran S, Agarwal R, Short RA, Benoff S, Thomas AJ Jr. Reassessing the value of varicocelectomy as a treatment for male subfertility with a new meta-analysis. *Fert Steril* 2007;88:639–48.
11. C. Methorst, W. Akakpo, JP Graziana, L. Ferretti, R. Yiou, N. Morel-Journel, *et al.*, [Recommendations of the AFU Committee on Andrology and Sexual Medicine regarding the management of varicocele] *Prog Urol J*, 31 (3) (2021), pp. 119–130