

PHARMACIST-LED IDENTIFICATION AND MANAGEMENT OF DRUG THERAPY PROBLEMS IN A PATIENT WITH PRIMARY MALE INFERTILITY SECONDARY TO BILATERAL VARICOCELE: A CASE REPORT

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ABSTRACT

Background: Varicocele is the most surgically correctable cause of male infertility, implicated in approximately 35-40% of primary and up to 80% of secondary male infertility cases globally. The condition arises from incompetent valves within the pampiniform venous plexus, resulting in retrograde blood pooling, scrotal hyperthermia, elevated reactive oxygen species (ROS), and progressive sperm DNA fragmentation. Despite the reversibility of varicocele-induced infertility following surgical repair, the pharmacist's role in perioperative optimisation and post-surgical reproductive care remains largely under-described in the literature, particularly in sub-Saharan African settings. **Case Presentation:** A 39-year-old Nigerian male — a vulcanizer by occupation — presented to the Surgical Outpatient Department of Federal Medical Centre, Yenagoa, with a 10-year history of primary infertility. He had no significant comorbidities, reported no tobacco or alcohol use, and had no known drug or food allergies. Past surgical history was notable for left inguinal herniorrhaphy performed 33 years prior. Scrotal ultrasound confirmed a “bag of worms” appearance within the left pampiniform plexus, diagnostic of bilateral varicocele. Semen analysis revealed severe oligoasthenozoospermia: active motility 10%, sluggish motility 30%, and non-motility 60%. Complete blood count, electrolytes, urea, and creatinine were all within normal limits. A diagnosis of primary male infertility secondary to bilateral varicocele was established, and bilateral varicocelectomy was performed.

KEYWORDS: Male infertility; varicocele; varicocelectomy; pharmaceutical care; drug therapy problems; NSAID gastroprotection; ashwagandha toxicity; antioxidant therapy; oligoasthenozoospermia; Nigeria.

DRUG THERAPY PROBLEM AND PHARMACIST INTERVENTION

Post-operatively, the patient was prescribed aceclofenac 100 mg twice daily, paracetamol 1 g three times daily, cefuroxime 500 mg twice daily, Addyzoa capsules (antioxidant fertility supplement) twice daily for three months, and vitamin C 1000 mg once daily for one month. Clinical pharmacy review identified a drug therapy problem: the prescription of aceclofenac without co-prescribed gastroprotection in a post-operative patient on NSAID therapy. In accordance with international gastroprotection guidelines, the pharmacist recommended the addition of omeprazole 20 mg once daily for the

duration of NSAID use. This was accepted by the surgical team. The patient was additionally counselled to administer aceclofenac with or after meals to further reduce gastrointestinal mucosal irritation.

PHARMACEUTICAL CARE PLAN AND PATIENT EDUCATION

Goals of therapy included: post-operative pain control, prevention of surgical site infection, and optimisation of sperm quality through antioxidant supplementation. Structured patient counselling addressed: (i) **medication adherence**, particularly completion of the antibiotic course to prevent resistance and surgical site infection; (ii)

antioxidant therapy rationale, with explanation that Addyzoa (containing *Withania somnifera* [ashwagandha], *Tribulus terrestris*, and micronutrient antioxidants) and vitamin C act synergistically to reduce oxidative stress and support sperm DNA integrity post-varicocelelectomy; (iii) **lifestyle modification**, with emphasis on avoiding scrotal heat exposure — of particular occupational relevance given the patient's work as a vulcanizer — increasing dietary antioxidant intake, and maintaining healthy body weight; (iv) **supplement safety and medication self-management**, with explicit instruction that the patient **must not self-refill or independently extend the course of Addyzoa or any other prescribed supplement beyond the stated duration without prior clinical review**. This caution was specifically anchored in the known adverse effect profile of ashwagandha (*W. somnifera*), a principal active constituent of Addyzoa, which has been associated with gastrointestinal disturbance (nausea, diarrhoea), hepatotoxicity, and thyroid hormone dysregulation with prolonged or unsupervised use. The patient was informed that continuation of supplement therapy beyond the prescribed three-month course may only be sanctioned following clinical and biochemical review at his scheduled follow-up appointment, where semen parameters, liver function, and thyroid indices can be reassessed; and (v) **realistic fertility expectations**, with the patient informed that semen parameter improvement is typically observed over 3–6 months post-varicocelelectomy, with conception rates improving over 12–24 months. Hormonal profiling (FSH, LH, total testosterone) and serial semen analysis at 3-month intervals were recommended to monitor reproductive recovery.

OUTCOMES

The patient achieved satisfactory post-operative recovery with adequate pain control and no evidence of surgical site infection. Adherence to the prescribed regimen was achieved through pharmacist-led counselling. Humanistic outcomes included improved health literacy, reduced anxiety, and enhanced confidence regarding fertility prognosis. Economically, early identification and resolution of the NSAID-related drug therapy problem prevented potential gastrointestinal complications that could have necessitated additional interventions, thereby improving the overall cost-effectiveness of the fertility management plan.

CONCLUSION

This case demonstrates the multidimensional value of clinical pharmacy practice in male reproductive health. The pharmacist's identification of a clinically significant drug therapy problem, combined with structured patient education encompassing antioxidant therapy, safety counselling on supplement self-management, lifestyle optimisation, and occupational risk counselling, contributed meaningfully to patient safety and fertility outcomes. Routine integration of pharmaceutical care into male infertility management pathways is warranted,

particularly in low-resource settings where pharmacist-led interventions offer a high-impact, cost-effective complement to surgical care.

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