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The Effect of a Vegan Diet on Post-Surgical Wound Recovery: A Case Report

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Abstract

Nutrition plays a critical role in the wound healing process. This case report describes a 70-year-old patient on a long-term vegan diet who experienced delayed wound healing following an elective minor surgical procedure. The case highlights the potential adverse effects of strict vegan dietary patterns on postoperative recovery. It also highlights the importance of considering nutritional supplementation to support optimal wound healing in individuals adhering to selective diets, such as veganism.

Introduction

A vegan diet is defined as a dietary pattern consisting exclusively of foods derived from plants, excluding all animal products, including dairy and eggs [1]. Acute wound healing, such as that following surgery, typically progresses through four distinct physiological phases: haemostasis, inflammation, proliferation, and remodelling [2]. Adequate and balanced nutrition is essential for the proper progression of these stages to ensure effective tissue repair and recovery [3]. However, selective diets, such as a strict vegan diet may limit the availability of key nutrients required for optimal wound healing [4]. This case report explores the potential impact of a long-term vegan diet on impaired postoperative wound healing.

Case Presentation

Patient Details: Madam C (pseudonym), a 70-year-old woman with no known medical comorbidities and full independence in activities of daily living (ADLs), presented to our clinic with a six-month history of swelling over the left popliteal fossa. She reported adhering to a strict vegan diet for over 30 years, with a dietary pattern predominantly consisting of fruits and leafy vegetables. Further history was suggestive of underlying bilateral knee osteoarthritis.

Examination: Physical examination revealed a soft, fluctuant, and non-tender swelling measuring approximately 2×2 cm over the left popliteal fossa. The swelling demonstrated a positive Foucher's sign [5], consistent with a clinical diagnosis of a popliteal (Baker's) cyst. The cyst was causing significant discomfort during knee flexion and interfering with the patient's daily functional activities. No radiological imaging was performed due to the patient's refusal. After informed consent, Madam C underwent open excision of the popliteal cyst via a posterior approach

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under local anaesthesia.

Procedure: Under aseptic conditions and local infiltration with 2% lignocaine, a 3 cm linear incision was made parallel to the skin crease of the popliteal fossa. Dissection was carried out through the subcutaneous layers until the cyst wall was identified. The cyst was then carefully ruptured and excised completely. The wound cavity was irrigated thoroughly with normal saline. Skin closure was performed using 4/0 poly(glycolide-co-lactide), a synthetic braided absorbable suture, applied via a subcuticular technique. An absorbable suture was selected to eliminate the need for suture removal, thereby enhancing patient convenience. Outcome: There were no immediate postoperative complications, and the patient was discharged on the same day of the procedure. However, at serial follow-up visits over the subsequent 4 weeks, the surgical wound demonstrated delayed healing with poor edge approximation, despite the absence of infection or dehiscence. Given her prolonged adherence to a strict vegan diet, the patient was counselled on nutritional support and advised to begin supplementation with soy- and oat-based protein sources. Follow-up reviews were scheduled every 2 to 4 weeks. By week 8, early granulation tissue and improved wound approximation were observed. Complete wound healing was achieved by week 12 postoperatively.

Discussion

This case highlights the potential impact of a long-term vegan diet on the wound healing process. Evidence suggests that the bioavailability of essential amino acids is generally lower in vegan diets compared to non-vegan diets [6,7]. Adequate protein and amino acid intake is crucial for the physiological progression of wound healing, particularly in the inflammatory, proliferative, and remodeling phases [8]. Certain peptides, such as carnosine, which are found in higher concentrations in animal-derived products, have been shown to enhance wound healing by supporting cellular repair and modulating oxidative stress [9]. Nutritional deficiencies can compromise the physiological capacity to produce an effective healing response [10]. Impaired wound healing not only delays recovery but also leads to suboptimal functional and aesthetic outcomes, which may reduce overall patient satisfaction and quality of life [11,12]. On the other hand, postoperative nutritional optimization, including protein supplementation has demonstrated significant benefits in accelerating wound healing, particularly in patients with restricted or inadequate diets [13,14]. This case underscores the importance of identifying at-risk dietary patterns during the preoperative assessment. Further research is warranted to explore diet-specific supplementation protocols that could enhance postoperative wound healing outcomes.

Conclusion

This case highlights a possible association between strict vegan diets and delayed wound healing after minor surgical procedures. Although vegan diets confer several health advantages, they may be deficient in key nutrients vital for efficient tissue repair. Healthcare providers are encouraged to adopt proactive nutritional strategies, such as supplementation particularly in patients adhering to restrictive dietary patterns like veganism.

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