

Biker's nodule in women: A case report and review of the literature

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ABSTRACT

Biker's nodule, also known as ischial hygroma, is a rare condition described predominantly in male cyclists. Only a few cases of affected female cyclists or horse riders have been reported.

This case presents a biker's nodule in a 57-year-old woman who was referred due to a progressively enlarging tumor on her right labia majora. Due to discomfort and pain, the patient opted for surgical excision. The histological examination showed the aforementioned diagnosis. Alongside the case report, a review of the literature on biker's nodules in the female population has been included.

Physicians should be aware of this entity and inquire about the patient's physical activity as part of the medical history assessment.

1. Introduction

Biker's nodule (BN), also known as cyclist's nodule, or ischial hygroma, is a benign pseudotumor that affects cyclists [1–3]. It was first described as perineal nodular induration in 1988 by Vuong et al. [4] The majority of reported cases are about male cyclists [1–3], and few cases of the published cases are about women [5,6]. This rare condition is thought to be caused by repetitive mechanical stress between the superficial perineal fascia and the ischial tuberosity [7–9]. As a result, competitive cyclists or equestrians are considered high-risk groups for developing BN.

Histological evaluation of BN typically shows a predominant fibrous component with myxoid degeneration, partial adipose tissue necrosis, and occasional formation of a pseudocyst [4,8–10]. Clinically, BN may manifest as a solitary or bilateral nodular lesion posterior to the scrotum, usually measuring 2–3 cm [2,11]. In females, the location can vary from the perineum to one or both labia majora [8]. Patients commonly present with perineal pain and tenderness, often leading to an inability to continue cycling [1]. Histopathologic and radiographic patterns in BN are mostly nonspecific. Therefore, clinical findings and patient history play pivotal roles in diagnosing this condition.

2. Case Presentation

A 57-year-old woman was referred with a tumorous swelling on the right labia majora, causing pain and tenderness, which had increased in

size over the past years. The clinical examination showed a 3–4 cm firm, nontender tumor of the right labia majora (Fig. 1). Ultrasonography revealed a nonspecific texture without cystic changes or increased Doppler signal with poorly demarcated margins (Fig. 2). Surgical excision was performed, and histologic examination revealed a nonspecific lesion consisting predominantly of fibrosis with partial necrosis of adipose tissue, myxoid degeneration, presence of vessels and nerves. These findings were consistent with a diagnosis of BN (Fig. 3).

The patient's symptoms had resolved at one-year follow-up and she reported no discomfort while riding a bicycle after additional saddle adjustment according to pressure mapping.

3. Discussion

As cycling gains increasing popularity, conditions related to it, including BN, are becoming more prevalent. While BN can often be diagnosed with the patient's medical history and a proper physical examination or ultrasound, MRI is sometimes performed due to the nonspecific clinical appearance of this condition. Typical sonographic findings may include a well-delineated, hypoechoic mass with heterogeneous echo signal without Doppler flow [9]. On MRI, an irregular hypointense T1 and hyperintense T2 signal in the perineum may be observed [10,12].

Therapeutic options include saddle modification in cyclists, corticosteroid or hyaluronidase injections, or surgical removal. Although recurrence after surgical management is described, additional saddle

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Fig. 1. Clinical finding of a swelling in the right labia majora.

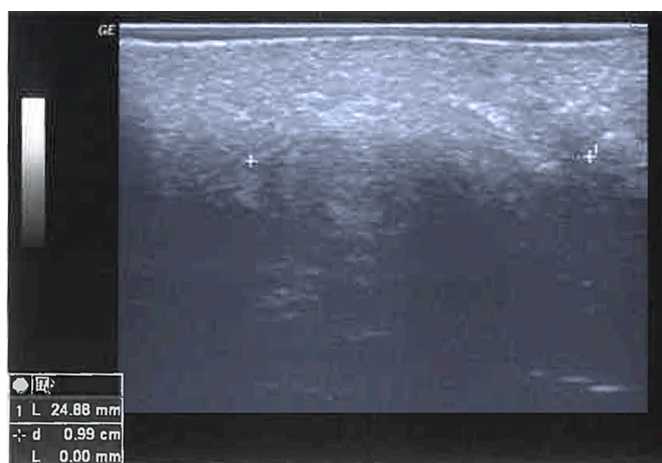


Fig. 2. Sonographic findings showing a poorly circumscribed lesion without signs of a capsule.

adjustment according to pressure mapping seems to represent a valid option for secondary prevention.

Few cases of affected women have been reported; we found seven female patients with a BN in our review of the literature (Table 1). The average age was 35.6 years, and the mean maximum diameter of the lesion was 40.8 mm. Most patients had a history of cycling while one patient was a competitive horse rider. The majority of patients underwent resection; three had surgery due to pain, while there was concern of malignancy in one patient, and no available information was provided for the remaining patients. In two patients, an unsatisfactory outcome

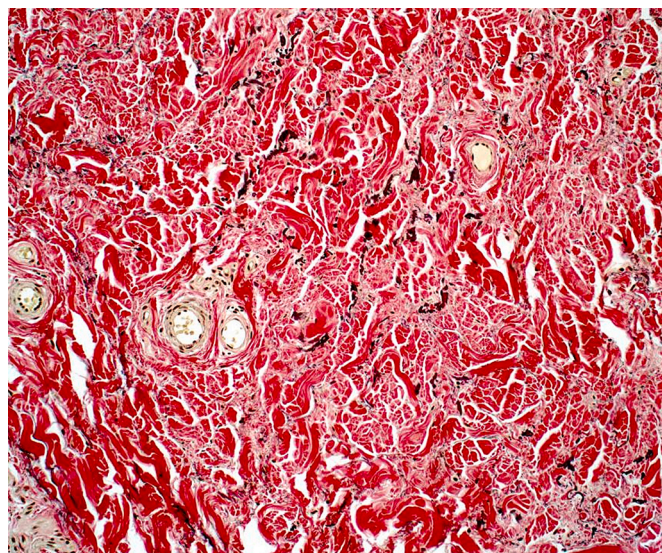


Fig. 3. Histopathology using Elastica-Van Gieson staining showing predominantly fibrosis with partial necrosis of adipose tissue, myxoid degeneration, vessels, and nerves.

was described, with recurrence after seven months in one case, and one patient stopped cycling due to discomfort. For one patient, conservative treatment by means of saddle adjustment according to pressure mapping was successful.

This case of a biker's nodule in a female cyclist is a typical example of a BN and is very similar to the cases described in the literature. As in most published cases, surgical management was performed.

4. Conclusion

BN is a benign lesion that occurs as a reactive response to recurrent mechanical stress in the perineal area. Patient history in combination with clinical findings is key in making the diagnosis. With the increasing popularity of cycling, cycling-associated conditions are also becoming more prevalent, making a thorough understanding of this condition necessary for healthcare professionals.

Contributors

Hannes Egli contributed to patient care, data collection, drafting the manuscript, undertaking the literature review and revising the article critically for important intellectual content.

Leonie Totschnig contributed to data collection and drafting the manuscript.

Nicolas Samartzis contributed to the conception of the case report, data analysis and interpretation and undertaking the literature review.

Dimitrios Rafail Kalaitzopoulos contributed to the conception of the case report and revising the article critically for important intellectual content.

All authors approved the final submitted manuscript.

Table 1
Review of the literature.

Study	Age	Activity	Duration	Localisation	Biggest diameter (mm)	Indication for surgery	Treatment	Follow up
Devers et al. 2010	55	competitive horse rider	n/a	perineal	30	n/a	surgical removal	resolution of pain
Norman et al. 2020	52	enthusiastic cyclist	5 months	perineal	35	pain	pressure mapping for saddle	complete resolution of symptoms
Mc Cluggage et al. 2010	45	competitive cyclist	2 weeks	labium majus	20	concern of malignancy	surgical removal	no recurrency
	15	competitive cyclist	12 months	labium majus	50	n/a	surgical removal	recurrency after 7 months
	18	competitive cyclist	12 months	labium majus	50	pain	surgical removal	no recurrency
	19	competitive cyclist	n/a	labium majus	60	pain	surgical removal	no recurrency
Swart et al. 2019	45	competitive cyclist	12 months	perineal	20	pain	cortico-steroid infiltration, later surgical removal	stopped cycling after two years due to discomfort

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Patient consent

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Provenance and peer review

This article was not commissioned and was peer reviewed.

Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this case report.

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