Cureus
Part of SPRINGER NATURE

Open Access Case Report

Van Neck–Odelberg Disease Mimicking Pelvic Infection in a Child: A Case Report and Literature Review

Review began 10/28/2026
Review ended 11/06/2026
Published 11/10/2026

© **Copyright** 2026
Rouijel et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI: 10.7759/cureus.119430

Badr Rouijel [1, 2], Mohamed Amine Oukhouya [1, 2]

1. Department of Pediatric Orthopedics, Mohammed VI University Hospital Center, Agadir, MAR 2. Faculty of Medicine and Pharmacy of Agadir, Biotechnology and Medicine Laboratory, Ibn Zohr University, Agadir, MAR

Corresponding author: Badr Rouijel, b.rouijel@gmail.com

Abstract

We report the case of a nine-year-old girl who presented with a two-month history of atraumatic right hip pain and a painful limp, without fever. Physical examination revealed pubic tenderness and pain elicited at the extremes of hip motion, with preserved range of motion. Laboratory investigations showed a normal complete blood count and C-reactive protein level, with a mildly elevated erythrocyte sedimentation rate. Pelvic osteomyelitis and a benign bone tumor were initially suspected. Plain radiography showed asymmetry of the right ischiopubic synchondrosis compared with the left side, and magnetic resonance imaging demonstrated focal bone marrow edema, without abscess, joint effusion, or soft-tissue mass, and single-photon emission computed tomography combined with computed tomography showed increased uptake confined to the synchondrosis. A diagnosis of Van Neck-Odelberg disease (VNOD) of the right ischiopubic synchondrosis was made. Conservative management with temporary cessation of sports activities and non-steroidal anti-inflammatory drugs as needed led to complete resolution of symptoms within six months. In this patient, a presentation initially suggestive of pelvic infection was managed without biopsy or surgical exploration. This case suggests that VNOD should be considered in children presenting with atraumatic pelvic or groin pain and a limp.

Categories: Pediatric Surgery, Pediatrics, Orthopedics
Keywords: ischiopubic synchondrosis, osteochondrosis, pediatric limp, pelvic pain, van neck–odelberg disease

Introduction

Van Neck-Odelberg disease (VNOD), also known as ischiopubic osteochondrosis, is a benign, self-limiting condition involving the ischiopubic synchondrosis, a temporary cartilaginous junction between the ischium and the inferior pubic ramus that undergoes physiological ossification during skeletal maturation [1,2]. The condition was first described by Van Neck in 1924 and subsequently became recognized as a developmental process involving the ischiopubic synchondrosis [1,3]. Although traditionally considered rare, VNOD may be underrecognized because its clinical and radiological features can mimic more serious conditions, including infection, stress injury, and neoplasia [1,3].

Clinically, VNOD typically presents in children with groin, buttock, or hip pain, limping, and localized tenderness, often in the absence of systemic symptoms [1,3]. Although benign, radiographic findings such as asymmetric enlargement, sclerosis, and irregularity of the ischiopubic synchondrosis may raise concern for osteomyelitis, stress fracture, or neoplastic disease [2,3]. Magnetic resonance imaging (MRI) is particularly useful when the diagnosis is uncertain, as it can demonstrate bone marrow edema and adjacent inflammatory changes while helping to exclude abscess formation and aggressive bone lesions [2,3]. Recognition of this entity is therefore essential to avoid unnecessary invasive investigations and inappropriate treatment [3,4].

We report a case of VNOD in a nine-year-old girl, with emphasis on the diagnostic reasoning, imaging features, and favorable outcome following conservative management.

Case Presentation

A nine-year-old girl presented with a two-month history of progressive right hip pain associated with a painful limp. There was no history of trauma. Her past medical history was notable for a simple appendectomy performed three months earlier.

The pain had a gradual onset, radiating from the right hip to the thigh, and was exacerbated by physical activity. There was no fever, and her general condition remained preserved.

Physical examination revealed mild swelling of the right inguinal fold, without redness or warmth, and localized tenderness on palpation of the pubic region. Active and passive range of motion of the hip was

preserved, although pain was elicited during flexion, adduction, and internal rotation. Examination of the knee was normal, with no effusion or instability. The neurovascular examination of the lower limbs was normal.

Initial diagnostic hypotheses included benign bone tumor and pelvic osteomyelitis. Laboratory investigations showed a normal complete blood count with a normal absolute neutrophil count and a normal C-reactive protein level, whereas the erythrocyte sedimentation rate was mildly elevated (Table *1*).

Parameter	Result	Unit	Reference range
WBC	13.09	$\times 10^9$/L	4.5–13.5
ANC	4.45	$\times 10^9$/L	1.5–8.0
Hb	12.5	g/dL	11.5–15.5
Hct	37.6	%	35–45
Platelet count	277	$\times 10^9$/L	150–450
CRP	2.3	mg/L	<5
ESR (first hour)	35*	mm/h	<20

TABLE 1: Laboratory findings at presentation.

WBC: white blood cell count; ANC: absolute neutrophil count; Hb: hemoglobin; Hct: hematocrit; CRP: C-reactive protein; ESR: erythrocyte sedimentation rate. *Value above the reference range; all other values were within normal limits. Reference ranges are age-appropriate values for a nine-year-old child.

Pelvic radiography showed asymmetry of the right ischiopubic synchondrosis compared with the left side (Figure *1*). Axial MRI at the level of the ischiopubic synchondrosis demonstrated widening of the synchondrosis with bone marrow edema centered on it (Figure *2A*); the adjacent axial image confirmed the absence of abscess formation, joint effusion, or soft-tissue mass (Figure *2B*). Bone scintigraphy with single-photon emission computed tomography (SPECT)-CT was then performed to further characterize the lesion and to look for other skeletal foci, given the differential diagnosis of osteomyelitis and benign bone tumor. The CT component showed no cortical destruction or periosteal reaction, and fused SPECT-CT images demonstrated focally increased tracer uptake in the right ischiopubic synchondrosis (Figures *3A*, *3B*), with milder uptake in the right hip region considered reactive to the limp. The MRI and SPECT-CT images were reviewed jointly by a radiologist and the pediatric orthopedic team before the final diagnosis.

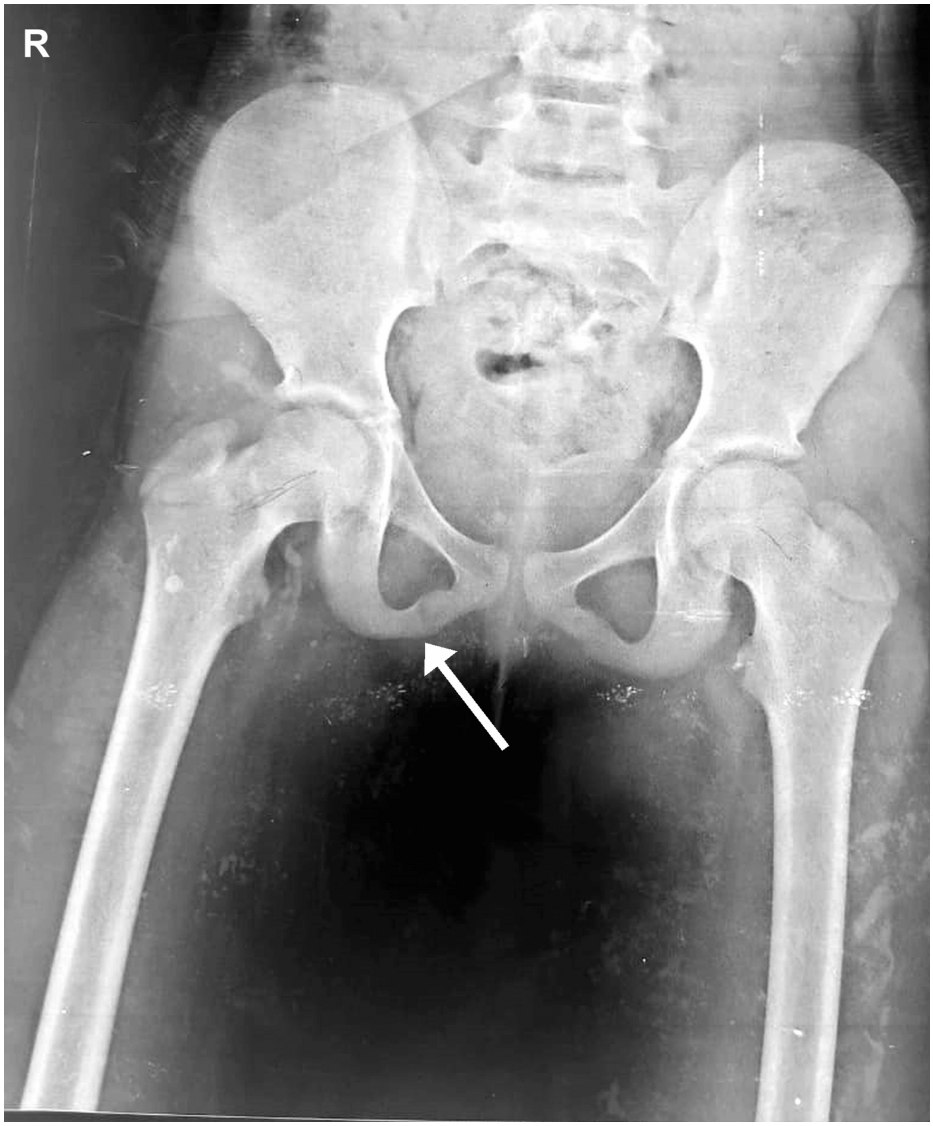


FIGURE 1: Anteroposterior pelvic radiograph showing asymmetry of the right ischiopubic synchondrosis compared with the left side (arrow).

R: right side.

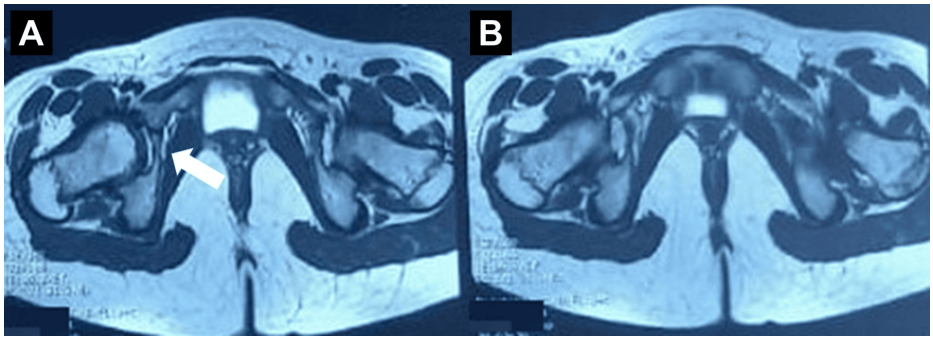


FIGURE 2: Axial T2-weighted MRI of the pelvis. (A) Image at the level of the ischiopubic synchondrosis showing widening of the right ischiopubic synchondrosis with adjacent bone marrow edema (arrow). (B) Adjacent axial image of the right ischiopubic region, surrounding soft tissues, and hip joint, showing the absence of abscess formation, joint effusion, or soft-tissue mass.

MRI: magnetic resonance imaging

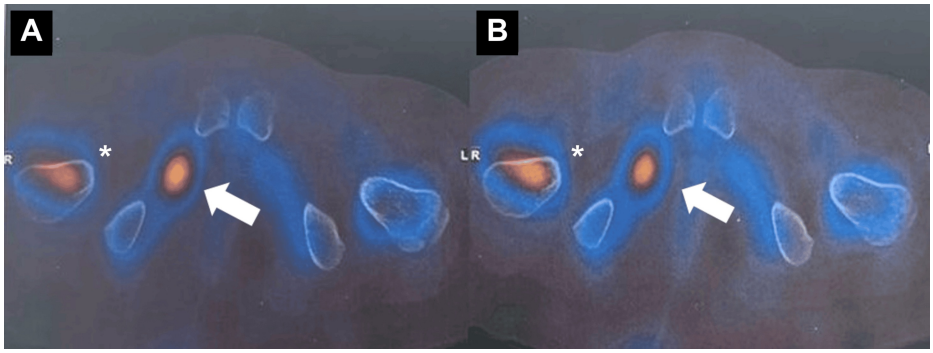


FIGURE 3: Bone scintigraphy with technetium-99m methylene diphosphonate (^{99m}Tc-MDP). Fused SPECT-CT axial images (A, B) showing focal increased uptake in the right ischiopubic region (arrows). Mild uptake in the right hip region (asterisks) was considered reactive to the limp in the nuclear medicine report.

R: right side; SPECT: single-photon emission computed tomography; CT: computed tomography.

Based on clinical, biological, and radiological findings, the diagnosis of VNOD was retained. Conservative treatment consisting of temporary cessation of sports activities and non-steroidal anti-inflammatory drugs as needed was initiated.

Clinical follow-up at one, three, and six months demonstrated progressive and complete resolution of symptoms on clinical examination, with return to sports activities after six months. No follow-up imaging was performed.

Discussion

VNOD, also known as ischiopubic osteochondrosis, is a benign and self-limiting condition occurring during the maturation of the pediatric pelvis. The ischiopubic synchondrosis is a temporary cartilaginous junction that progressively ossifies before skeletal maturity. Although the precise mechanisms underlying symptomatic VNOD remain incompletely understood, developmental changes and mechanical factors are thought to contribute to symptomatic changes at the synchondrosis [1-3].

The clinical presentation is nonspecific and typically includes localized groin, buttock, or hip pain, limping, and tenderness around the ischiopubic region. The condition generally occurs during skeletal maturation

and is frequently unilateral [1,3,4]. Our patient was a nine-year-old girl with a two-month history of progressive right hip pain and a painful limp, without preceding trauma. The initial differential diagnoses included pelvic osteomyelitis and a benign bone tumor. However, the absence of fever, preserved general condition, a white blood cell count within the reference range, and a normal C-reactive protein level made an active infectious process less likely, without excluding it. The mild, isolated elevation of the erythrocyte sedimentation rate was considered nonspecific in the absence of fever, neutrophilia, or C-reactive protein elevation. The recent history of appendectomy was also considered, but no clinical, biological, or imaging findings suggested a postoperative infectious complication.

Pelvic radiography showed asymmetry of the right ischiopubic synchondrosis compared with the left side. Such asymmetry, enlargement, and sclerosis may occur during physiological maturation but can also mimic fracture, infection, or neoplasia [1,2,5]. Increased scintigraphic uptake of the synchondrosis is also frequently observed in asymptomatic children [5]. VNOD therefore refers to the symptomatic form, in which these changes are associated with pain, local tenderness, and limping. MRI was particularly useful in our patient, demonstrating bone marrow edema centered on the synchondrosis without abscess formation, joint effusion, or soft-tissue mass. These findings supported a localized benign process and made the main alternative diagnoses less likely [2,3].

The distinction between VNOD and pelvic osteomyelitis is particularly important because both conditions may present with pain and limping. MRI can help assess the extent of the process and identify associated soft-tissue inflammatory changes or abscess formation, which are more suggestive of infection [5,6]. In our patient, the absence of systemic symptoms, a normal C-reactive protein level with only a mild elevation of the erythrocyte sedimentation rate, and the lack of abscess or soft-tissue mass favored VNOD. SPECT-CT showed a single focus of uptake in the right ischiopubic synchondrosis, without cortical destruction or periosteal reaction, apart from mild uptake in the right hip region attributed to the limp. Although scintigraphic uptake is not specific, these findings were interpreted together with the clinical and MRI findings and further supported the diagnosis [5,6].

The unilateral presentation and activity-related worsening of symptoms in our patient are compatible with the proposed role of mechanical factors in the pathogenesis of VNOD. Herneth et al. reported a correlation between asymmetric closure of the ischiopubic synchondrosis and foot dominance, supporting the possible contribution of asymmetric mechanical forces during skeletal maturation [7]. Nevertheless, the precise mechanisms remain incompletely understood, and a direct causal relationship cannot be established in an individual patient.

No clinical sign is specific to VNOD, and hip or groin pain with limping is common in children of this age; the diagnosis therefore relies on the exclusion of other causes, including septic arthritis, pelvic osteomyelitis, apophyseal avulsion, stress fracture, post-traumatic lesions, and bone tumors [1,3]. A painful enlargement of the synchondrosis may have a pseudotumoral appearance and lead to diagnostic uncertainty [3,4]. In our patient, the combination of a white blood cell count within the reference range, a normal C-reactive protein level, the absence of systemic symptoms, and MRI evidence of localized bone marrow edema without abscess or soft-tissue mass reduced the likelihood of osteomyelitis without excluding it. The diagnosis of VNOD was therefore based on the combined clinical, laboratory, and imaging findings, after joint review of the imaging, and conservative management was chosen without biopsy or surgical exploration.

Treatment is generally conservative, consisting of activity modification, temporary rest, and symptomatic analgesic or anti-inflammatory treatment [1,3,8]. Schneider et al. reported favorable outcomes with nonoperative management in a retrospective series of 21 patients and concluded that invasive diagnostic and therapeutic procedures are unnecessary when the clinical and imaging findings are consistent with VNOD [8]. Our patient was managed with temporary cessation of sports activities and non-steroidal anti-inflammatory drugs as needed. Symptoms progressively improved and had completely resolved by the six-month follow-up, with return to sports activities after six months.

This case highlights the importance of considering VNOD in children presenting with atraumatic hip or pelvic pain and limping. Although the condition may mimic infection or neoplasia, careful correlation of the clinical presentation, laboratory results, and imaging findings can support the diagnosis and avoid unnecessary invasive procedures. In our patient, the location of the lesion, the absence of systemic features, the near-normal inflammatory profile, the MRI findings, and the favorable response to conservative treatment were consistent with the benign and self-limiting nature of VNOD.

Conclusions

VNOD is an uncommon but benign cause of pelvic pain and limping in children, often leading to diagnostic confusion with infectious or neoplastic conditions. Awareness of this entity is essential for pediatricians, orthopedic surgeons, and radiologists. As this report describes a single case, its findings cannot be generalized, and the diagnosis should rely on the integration of clinical, laboratory, and imaging findings, since none of them alone excludes osteomyelitis.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Badr Rouijel, Mohamed Amine Oukhouya

Acquisition, analysis, or interpretation of data: Badr Rouijel

Drafting of the manuscript: Badr Rouijel

Critical review of the manuscript for important intellectual content: Mohamed Amine Oukhouya

Supervision: Mohamed Amine Oukhouya

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Sahu MA, Tahir A, Sahu MA, Rafiq T: Van Neck-Odelberg disease: a systematic review of literature and case presentation. Cureus. 2024, 16:e72751. 10.7759/cureus.72751
2. Herneth AM, Trattnig S, Bader TR, Ba-Ssalamah A, Ponhold W, Wandl-Vergesslich K, Steinbach LS: MR imaging of the ischiopubic synchondrosis. Magn Reson Imaging. 2000, 18:519-24. 10.1016/S0730-725X(00)00138-7
3. Wait A, Gaskill T, Sarwar Z, Busch M: Van neck disease: osteochondrosis of the ischiopubic synchondrosis . J Pediatr Orthop. 2011, 31:520-4. 10.1097/BPO.0b013e31821f9040
4. Oliveira F: Differential diagnosis in painful ischiopubic synchondrosis (IPS): a case report . Iowa Orthop J. 2010, 30:195-200.
5. Kloiber R, Udjus K, McIntyre W, Jarvis J: The scintigraphic and radiographic appearance of the ischiopubic synchondroses in normal children and in osteomyelitis. Pediatr Radiol. 1988, 18:57-61. 10.1007/BF02395762
6. Iqbal A, McKenna D, Hayes R, O'Keeffe D: Osteomyelitis of the ischiopubic synchondrosis: imaging findings . Skeletal Radiol. 2004, 33:176-80. 10.1007/s00256-003-0673-6
7. Herneth AM, Philipp MO, Pretterklieber ML, Balassy C, Winkelbauer FW, Beaulieu CF: Asymmetric closure of ischiopubic synchondrosis in pediatric patients: correlation with foot dominance. AJR Am J Roentgenol. 2004, 182:361-5. 10.2214/ajr.182.2.1820361
8. Schneider KN, Lampe LP, Gosheger G, et al.: Invasive diagnostic and therapeutic measures are unnecessary in patients with symptomatic van Neck-Odelberg disease (ischiopubic synchondrosis): a retrospective single-center study of 21 patients with median follow-up of 5 years. Acta Orthop. 2021, 92:347-51. 10.1080/17453674.2021.1882237