

GOUT ARTHRITIS DISTAL FIBULA MIMICKING BONE TUMOR: A CASE REPORT

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ABSTRACT

Gout is a picturesque presentation of uric acid disturbance. The clinical picture of gout is divided into asymptomatic hyperuricemia, acute gouty arthritis, intercritical period, and chronic tophaceous gout. The tophus found on gouty arthritis has clinical resemblance to neoplastic lesions such as epidermoid cysts therefore it is often mistaken. Diagnosis of gout is based on the history, the laboratory result, ultrasonography and histopathological examination. Management of gout includes management of flares, chronic gout, as well as management of comorbidities.

Keywords: Gout arthritis, distal fibula, tophus, bone tumour

ABSTRAK

Gout adalah presentasi gangguan asam urat yang menarik. Gambaran klinis gout dibagi menjadi hiperurisemia asimtomatik, artritis gout akut, periode interkritis, dan gout tofus kronis. Tofus yang ditemukan pada artritis gout memiliki kemiripan klinis dengan lesi neoplastik seperti kista epidermoid sehingga sering disalahartikan. Diagnosis gout ditegakkan berdasarkan anamnesis, hasil laboratorium, ultrasonografi, dan pemeriksaan histopatologi. Penatalaksanaan gout meliputi tatalaksana flare, gout kronis, serta tatalaksana penyakit penyerta.

Kata kunci: Distal fibula, Gout arthritis tumor tulang

BACKGROUND

Gout is a progressive disease due to deposition of monosodium urate (MSU) crystals in joints, kidneys and other connective tissue.¹Gout affects 1–2% of the adult population, and is the most common case of inflammatory arthritis in men. The prevalence of gout is estimated to be between 13.6 per 1000 men and 6.4 per 1000 women. The prevalence of gout

increased with age, with a mean of 7% in men >75 years and 3% in women >85 years.² Asymptomatic hyperuricemia, acute gouty arthritis, polyarticular gouty arthritis, and chronic tophaceous gout are among the four stages of gout. Alcoholism, rapid purine nucleotide breakdown, genetic predisposition, and congenital disorders such as Lesch Nyhan syndrome have all been linked to atypical gout presentations in

young male and female patients.³ Diagnosis of gout is based on the 2015 ACR/EULAR criteria. Chronic gout can manifest a tophus that clinically similar to tumor which is need laboratory result of uric acid and histopathological examination to differentiate with the neoplastic lesions.⁴ Management of gout includes the management of flares, chronic gout as well as management of comorbidities such as tophus that enlarge and destructive which is needed to be operated.⁵

The authors report a patient with a bone tumor in the distal fibula caused by a gout arthritis.

CASE REPORT

A 44-year-old Indonesian, male came to the ED with chief complaint of lump in his right ankle. Ten years prior to admission, patient suddenly felt pain in his right ankle after playing football. The pain was mild and there was no limitation to daily activities. But since then, the ankle became swollen and slowly getting bigger. Three months prior to admission, the pain got worsens and the lump got bigger. Patient wen to Jayapura Hospital, had an X-Ray and the result is bone tumour. Therefore, the patient was referred to SoeharsoOrthopaedic Hospital.

On general and systemic examination found within normal limits. On examination of the right ankle region, found that there was oedema, a palpable solid mass, immobile and has demarcated border in the lateral ankle(Figure 1). The patient feels tenderness and pain with movement both

active and passive. Motor strength in the right leg was reduced by a value of 5/5/5. ROM is limited due to pain. The first results of laboratory tests were found to be within normal limits. Ankle radiographs patient's can be seen in figure 2.



Figure 1. Clinical picture



Figure 2. X-Ray of Ankle (D)

Contrast MRI of the right ankle (Figure 3) showed a mixed cystic-solid mass, amorphous, indistinct, lobulated, 7.6 cm x 6.9 cm x 6.7 cm in the intraosseous distal

fibula bone, with destruction of the cortex, extending to the surroundings laterally, medially, and posteriorly, also extending to the thallus, distal tibia and calcaneus, extending to the soft tissue region of the ankle joint on the lateroposterior aspect, with surrounding soft tissue oedema (biopsy confirmation).



Figure 3. Contrast MRI of Ankle

FNAB was performed and the results of histopathological examination found macroscopically, a mass in the right ankle region in the size of a tennis ball, lumpy, fixed, solid, palpable cystic, skin color, tenderness

(+/-). Microscopically, found hypocellular, keratin threads, areas of necrosis and several squamous cells in various maturations. There were no signs of malignancy with the conclusion of Benign Cystic Lesion inclined to an Epidermal Cyst. Confirmation of the diagnosis by excisional biopsy is required.

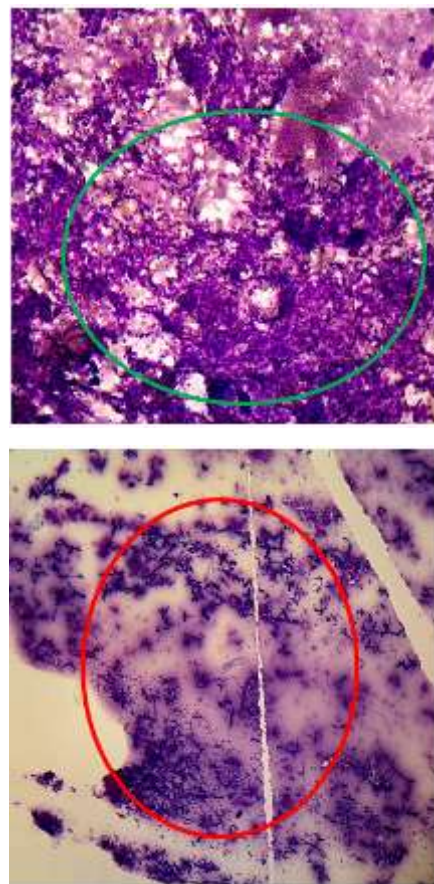


Figure 4. FNAB samples, 200x and 400x. Green: fairly dense keratin mass threads. Red: distribution of squamous cells

This patient then has surgery which is marginal excision done. After the operation, the histopathological examination is once again done and the tissue is gained from the operation. The results are macroscopically, there are 3 pieces of tissue with a size of 4.5x3.5x2 cm; 4.5x2.5x2.5 cm; and

2.5x3x1.5 cm. Brownish white in color. There are areas of white mass on cutting. The consistency is spongy-solid. Microscopically, found the cysts with walls lined with complex squamous epithelium and lumen filled with monosodium urate crystals. There are distribution of multinucleated giant cells and no sign of malignancy with the conclusion of gout tophus.



Figure 5. Durante operation

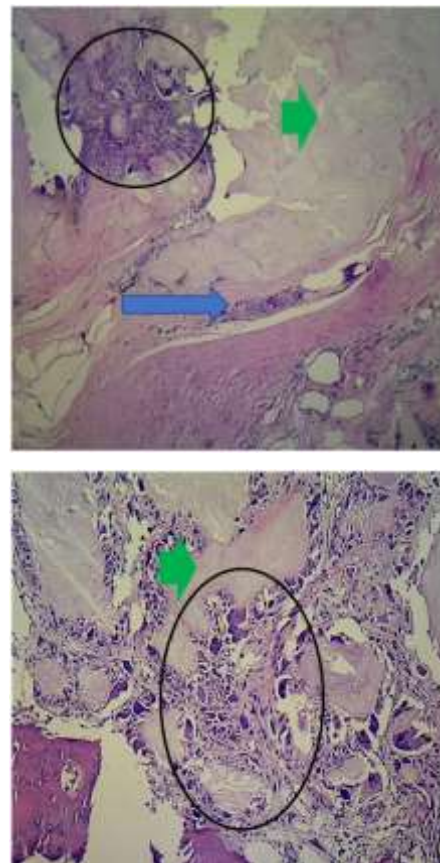


Figure 6. Histopathological examination, HE, 200x and 400x. Green: MSU crystals. Black: keratinized squamous epithelium. Blue: the tumor wall is a stroma of fibro-collagenous connective tissue that grows to form a multinodular structure.

The diagnosis of gout tophus then re-confirmed by laboratory examination of uric acid and the result shows the increasing of uric acid level which is 9.8 mg/dL, meanwhile the normal reference range from 3.5 – 7.2 mg/dL.

Finally, from the history, physical examination, the newest laboratory and histopathological examination, this patient is diagnosed with distal fibula bone tumor et causa gout arthritis.

DISCUSSION

Gout arthritis is progressive disease due to deposition of monosodium urate (MSU) crystals in joints and other connective tissue.¹ The crystals also can deposit in the intraosseus.

Gout most commonly affects the lower limbs, especially the first metatarsophalangeal joint, ankles, and knees. The presence of monosodium urate crystals in the synovial fluid of the afflicted joint can confirm the diagnosis. Gout can be treated with nonsteroidal anti-inflammatory drugs (NSAIDs), corticosteroids, or colchicine.³

The deposition of MSU crystals in tissues begins when serum uric acid levels rise above normal. Several factors influence the formation of MSU crystals, including synovial fluid pH, water concentration, electrolyte levels, and other synovial components such as proteoglycans and collagen.⁶

The first exacerbation of acute arthritis most often affects the 1st metatarsophalangeal (MTP) joint, classically referred to as podagra. The onset of exacerbation is sudden. The affected joint is erythematous, warm, swollen and painful.¹

Acute arthritis that are not treated properly will result in chronic gouty arthritis which is characterized by mild inflammation of the joints accompanied by chronic destruction. Clinical manifestation of chronic arthritis including joint deformities and tissue tophi. Tophus are hard lumps that contain deposit of MSU crystals. Tophus will cause damage to the joints and surrounding bones.¹

On laboratory examination, there is increasing of uric acid serum level.⁴ The histopathological examination will be found MSU crystal surrounded by multinucleated giant cell.⁷ On ultrasonography, it will be found the double contour sign showing the deposition of MCU crystals.⁴

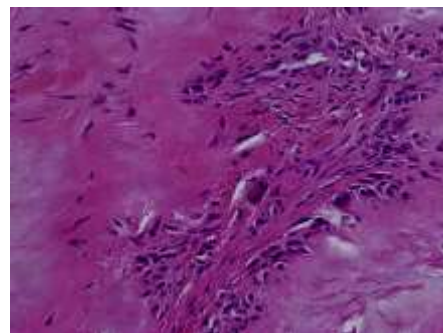


Figure 7. Histopathological examination of gouty tophus

Because of the resemblance, the tophus on chronic gout is often mistaken as epidermoid cysts. Epidermoid cysts are the developing form of cysts, which are filled with keratin and lined by stratified squamous epithelium similar to skin. Clinical manifestations found can be a mass, painful swelling, erythema and fluctuations.⁸

On histopathological examination, epidermoid cysts is lined by an epithelial cell wall-stratified squamous epithelium resembling epidermis and includes a granular layer and keratin lamellae in the lumen. On ultrasound examination found the oval-shaped hypoechoic structure located in the upper hypodermis and dermis with a central hypoechoic band.⁹

CONCLUSION

Gout Arthritis is a progressive disease due to deposition of MSU crystals. Chronic gout

should be considered in the differential diagnosis of benign bone-destroying lesions because of the tophus. The examinations that needed to confirm the diagnosis of gout are histopathology, ultrasonography, and laboratory of uric acid level.

Management of gout is including management of flares, prevention of flares exacerbation and the chronic gout. If the tophi are performed and enlarge the excision surgery is needed.

REFERENCES

1. *Perhimpunan Reumatologi Indonesia. Rekomendasi Pedoman Diagnosis dan Pengelolaan Gout. 2018. 1–33 p.*
2. *Kambayana RP. Hyperurcemia and Factors Relating in the Community of Balinese Population. An epidemiological survey. Press. 2010*
3. *Mujaddid I, Rosihan E, Handry TH, Brian W. Tophaceous gout of hip joint mimicking bone tumor. Open Access Maced J Med Sci. 2020;8(C):181–3.*
4. *Neogi T, Jansen TLTA, Dalbeth N, Fransen J, Schumacher HR, Berendsen D, et al. 2015 Gout Classification Criteria: an American College of Rheumatology/European League Against Rheumatism collaborative initiative. Arthritis Rheumatol (Hoboken, NJ). 2015 Oct;67(10):2557–68*
5. *Chan CCD, Chui KHT, Lee KB. Pathological Fracture of the Proximal Tibia from an Intraosseous Gouty Tophus: A Rare Presentation of Gout. J Orthop Trauma Rehabil. 2017;23:49–53*
6. *Ragab G, Elshahaly M, Bardin T. Gout: An old disease in new perspective – A review. J Adv Res [Internet]. 2017;8(5):495–511.*
7. *Su CH., Hung JK. Intraosseous Gouty Tophus in the Talus: A Case Report. The Journal of Foot and Ankle Surgery. 2017;55(2):288–90.*
8. *Park TW, Kim JK, Kim JR. Giant epidermal cyst in the posterior neck developing over 40 years: A case report. Exp Ther Med. 2013;7(1):287–9.*
9. *Hoang VT, Trinh CT, Nguyen CH, Chansomphou V, Chansomphou V, Tran TTT. Overview of epidermoid cyst. Eur J Radiol Open [Internet]. 2019;6(August):291–301.*