Gout is a type of arthritis that affects millions of people worldwide, earning a reputation for being one of the most frequently recorded illnesses throughout history. This case study revolves round a 57 year old man who is a recent immigrant from a foreign country. He came to the clinic with the complaint of an increase in size of a subcutaneous nodule on his elbow. This nodule had been bothering him for two years. He has a past history of repeated attacks of joint pain.

PHYSICAL ASSESSMENT

The physical examination revealed a rounded, subcutaneous nodule over the elbow, which was tender and rubbery to the touch. The examination was also notable for a subcutaneous nodule at the left metatarsal - phalangeal joint and left metacarpal - phalangeal joint. There is also evidence of arthritis involving both hands.

DIAGNOSIS

After physical examination and various diagnostic tests, client is diagnosed as a case of ‘Gout’.

DEFINITION

Gout is defined as “a syndrome of acute attacks of arthritis caused by ‘’hyperuricaemia’’ (Brown & Edwards, 2009).

PATHOPYSIOLOGY OF GOUT

The clinical manifestations of gout result from the formation and deposition of uric acid crystals. Gout results from either the overproduction or the under excretion of uric acid. Elevated serum urate levels lead to the deposition of monosodium urate crystals in a variety of tissues. The crystals are phagocytised by polymorph nuclear neutrophils that initiate chemo taxis and an inflammatory response. The inflammatory response is manifested as the clinical signs and symptoms of gout (Lehne, 2010).

In this case, X – ray revealed that the client has a subcutaneous nodule, consistent with a gouty tophus, at the left first metacarpal-phalangeal and left first metatarsal-phalangeal joints.

CLINICAL MANIFESTATIONS OF GOUT

In acute phase, gouty arthritis may occur in one or more joints. Affected joints may appear clusky or cyanotic and are extremely tender. Inflammation of the great toe is the most common initial problem. Onset of symptoms is typically rapid, with swelling and pain peaking within several hours, often accompanied by low grade fever. (Brown & Edwards, 2009)

Chronic gout is characterized by multiple joint involvement and visible deposits of sodium urate crystals called tophi. These are typically noted in the synovium, subchondral bone, olecranon bursae and vertebrae: along tendons and in the skin and cartilage. (Brown & Edwards, 2009)

In the comparison of clinical manifestation of gout with Mr. A, it is evident that many of the symptoms are absent in him. At the same time, he has joint pain for two years and multiple nodules on his left meta - tarsal phalangeal joint and left metacarpal phalangeal joint.

MEDICAL PROCEDURES, PURPOSE AND OUTCOMES

A presumptive diagnosis of gout is often made based on the classic presentation of the disease. A definitive diagnosis of gout relies on the demonstration of monosodium urate crystals in synovial fluid or tophi. The following tests are performed to differentiate gout from other diseases. (Rott & Agudelo, 2004).

**Synovial fluid analysis**

Synovial fluid aspiration can be performed during an acute episode of gout or during an asymptomatic period. Monosodium urate crystals appear as rod-shaped structures on microscopy. A mild leukocytosis is usually present in synovial fluid. If septic arthritis is considered in the differential diagnosis, the joint fluid should be sent for culture. ( Rott & Agudelo, 2004).

**Laboratory**

Serum uric acid levels should be obtained during the evaluation of a patient with gout. Serial uric acid measurements are valuable in following the course of treatment. A 24-hour urine collection may be performed to assess uric acid excretion. A value of more than 800 mg of urate per 24 hours suggests overproduction of uric acid. (Rott & Agudelo, 2004).

**Imaging studies**

During an acute attack of gout, radiographs are often nonspecific, but may reveal soft tissue swelling. Joints affected by chronic gout often display bony erosions, cystic changes, and overhanging bone edges. (Rott, & Agudelo, 2004).

MANAGEMENT

The goals of pharmacotherapy include the treatment of pain during acute attacks as well as long-term control of hyperuricemia

PHARMACOLOGICAL MANAGEMENT

Nonsteroidal anti-inflammatory drugs

Nonsteroidal anti-inflammatory drugs (NSAIDS) provide effective pain relief and result in resolution of symptoms in 5 to 7 days. Ibuprofen, indomethacin, and diclofenac are the most commonly employed agents. NSAIDS must be used with caution in patients with renal insufficiency. Common side effects include gastrointestinal upset and peptic ulcers. NSAIDS, especially indomethacin, are associated with closure of the ductus arteriosus and must be used with caution, particularly in the third trimester. Other reported side effects of indomethacin include oligohydramnios and intraventricular hemorrhage. (Lehne, 2010).

**Colchicine**

Colchicine inhibits microtubule assembly, thereby inhibiting neutrophil mediated phagocytosis. Colchicine provides effective pain relief in patients with acute gouty arthritis. Side effects of colchicine include renal, hepatic, and central nervous system toxicity as well as bone marrow suppression and myopathy. Reproductive toxicities including oligospermia, azoospermia, and disorders of motility have been reported in men. This is contra- indicated in patients with liver and renal diseases. (Lehne, 2010).

**Corticosteroids**

Oral, parenteral, and intraarticular glucocorticoids are a third option for patients with acute gouty arthritis. Oral and parenteral corticosteroids are used if NSAIDS and colchicine are contraindicated. It is associated with short and long term side effects. (Schlesinger, 2004).

Two classes of drugs are used for the chronic management of gout and hyperuricemia. They are Uricosuric agents and Xanthine oxidase inhibitors. Uricosuric drugs are best used by patients who under excrete uric acid. Probenecid is the most frequently used agent. Mild gastro – intestinal side effects occur with the use of this drug. (Schlesinger, 2004).

Xanthine oxidase inhibitors are best employed in patients with overproduction of uric acid. The most common drug employed is allopurinol. Side effects include rash, renal failure, bone marrow suppression, and liver dysfunction. It is contra – indicated in pregnancy and in patients with renal disease. (Schlesinger, 2004).

Non pharmacological management

Gout is influenced by numerous factors, including overeating, obesity, alcohol abuse, hyperlipidaemia, and insulin resistance syndrome. A low purine and protein diet along with alcohol restriction, weight loss through caloric restriction, and management of associated disease, may be extremely beneficial.(Kramer, Choi & Atkinson, 2005)

Also, since patients with gout are at an increased risk for developing nephrolithiasis, health care providers should emphasize the importance of increasing fluid intake and decreasing salt consumption. In addition, joint rest and local application of ice may be beneficial. (Schlesinger, Detry & Holland, 2004).

The following are the main tips for effective nursing management.

* Provide a low - purine diet as prescribed
* Instruct the client to avoid foods such as organ meats, wines and aged cheese.
* Encourage a high fluid intake of 2000 ml to prevent stone formation.
* Encourage weight reduction diet if required
* Instruct the client to avoid alcohol and starvation diets .
* Increase urinary pH by eating alkaline ash foods and dairy products
* Provide bed rest during the acute attacks
* Monitor joint range of mobility and appearance of joints
* Position the joint in mild during acute attack
* Elevate the affected extremity
* Protect the affected joint from excessive movement or direct contact with sheets or blankets
* Provide heat or cold for local treatments to affected joint as prescribed
* Administer NSAIDS and anti gout medications as prescribed

The expected outcome is reduction in pain and

.ADVANCES IN NURSING PRACTICE

Advances in the treatment of gout have followed the realization that the problem is not one that has been well identified and managed. There is accumulating epidemiologic data looking at traditional and newer risk factors and the demonstration that there is an increasing societal burden from gout. More research is being conducted into the mechanisms, and further understanding of prevention and how diet and other risk factors could impact the risk of gout development will follow. (Browns & Edward, 2009)

Because uric acid’s role in gout is well understood and medications to ease attacks and reduce the risk or severity of future attacks are widely available, gout is one of the most—if not the most—controllable forms of arthritis. But researchers continue to make advances that help people live with gout. Perhaps someday these advances will prevent this extremely painful disease. (Dupuis, 2011)

There are many advancement in nursing practice recently. New researches reported that, acupuncture can use in the treatment of gouty arthritis. Acupuncture creates measurable internal changes and relieves symptoms by resolving the core systemic balance. At the same time, infra-red irradiation also used in the treatment of gouty arthritis with acupuncture. (Dupuis, 2011)

On the other hand, the development in the treatment of gouty arthritis is Febuxostat. Febuxostat, would be the first new medicine in four decades for gout becoming more. Over a year, Febuxostat was three times more effective at lowering urate to a healthy level. But the Febuxostat patients only had slightly fewer gout attacks by the end. (Lehne, 2010)

Discharge plan

Proper education of the family and the patient about the adverse symptom of gouty arthritis.Special care to be taken to avoid pain and advise them about the careful handling of the affected joints. Instruct the family and the client about the adverse effects of high purine diet, alcohol, drugs like aspirin and starvation. At the same time inform them about the benefit of cold application and the side effects of medicine prescribed. (Brown & Edward, 2009)

**Conclusion**

Gout is an often under diagnosed disorder that continues to affect females, particularly postmenopausal patients. The efficient evaluation and diagnosis of gout is imperative to prevent long-term complications of hyperuricemia such as chronic gouty arthritis and nephropathy. Effective pharmacotherapy is now available for gout. Acute gouty arthritis is best treated with NSAIDS, and chronic hyperuricemia may be treated with probenecid or allopurinol. To an extend gout can be prevented by early diagnosis and treatment.

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