Vascularized the greater trochanter grafting treatment cysts of the femoral neck

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A R T I C L E   I N F O

Article history:
Received 7 December 2011
Accepted 22 March 2012
Available online xxxx

A B S T R A C T

Bone cyst is a common benign bone tumor lesion, it is characterized by a clear boundary appearing round or oval osteolytic area, cortical bone thinning, and sometimes it can be visible sclerotic margin. Limb long bone cysts occur more common shares, the current jaw bone cysts are also relatively common, and most patients are asymptomatic [1]. Femoral neck bone cyst can lead to pain and pathologic fractures, which is one of the main reasons why patients are in treatment. Due to the lesion site and patients age specificity of femoral proximal bone cysts especially femoral neck bone cysts in young adults, treatment is necessary to completely remove the lesion to prevent cyst recurrence, but also as far as possible to restore function in patients with hip joint.

Introduction

The cause of bone cysts is still a mystery, and there are many hypotheses about it. By 1960 Cohen et al. analyzed the SBC cyst fluid of 6 cases for chemical composition and found that the composition is similar to that of serum, and proposed 'block theory'. They believe that the formation of SBC is because of metaphysial rapid absorption during shaped bone and sinusoidal blood vessel blockage [4]. Mirra et al. think its formation is because of SBC synovial blurred during the embryonic development of the department from bone, and still has a secretary function, secretion of fluid accumulation retention. In 1973, Neer proposed sinusoids closure led to the formation of tissue fluid exudation and SBC doctrine, he found in cyst fluid that alkaline phosphatase (AKP) is the content of 10–20 of venous blood, may display the repair of osteoblasts, and as the ratio of AKP and acid phosphatase in cyst fluid “active” indicator [5]. Gerasimov (1991), think that due to the existence of many enzymes to promote the degradation of macromolecular substances SAC increased hydrostatic pressure within the cavity and fluid retention which caused cysts forming [6]. In 1979, Sanerkin and so on are often found aging calcification of fibrin clots in the SBC, they provide support for formation of new bone, similar to the process of cartilage within bone, which clot from trauma caused by plasma coagulation factors after the cyst fluid plasma composition-like entity in part, this phenomenon in other bone tumor or tumor-like variable does not exist. This in turn makes the doctrine of trauma, or other factors lead to agglutination of Medullary cavity or subcortical hemorrhage fibrosis bone.
absorption and formation of SBC [7]. Shindell et al. (1989) with radioimmunoassay method for determination of activity of prostaglandin E of SBC cyst fluid: (PGE 2) and found it significantly elevated, that PGE: might be partial synthesis of an active substance, is the osteoclast activator, precipitate bone absorption, acceleration cyst formation [8]. In 1970, Cohen in a state of low pressure to the injection in contrast, distal cyst found no contrast agents and contrast agents out there intracapsular after injection of 24 h, proposed the “Cava” theory [9]. In 2000, Komiya discovered through observations that within the cyst fluid, such as nitrate reductase, nitrite content significantly higher serum, cyst fluid of interleukin-6 and interleukin-1β level is significantly elevated. Cyst fluid and immunostaining of cells within the cyst wall are clearly displayed with nitrogen oxide synthesis. Through cell culture of the cyst capsule found cytokinin joined caused elevated nitrate reductase, nitrite, synthesis of these findings suggest that SBC beneficial nitrogen oxides [10]. So, how to thoroughly eliminate the femoral head cysts within organizations to prevent recurrence and restore blood circulation in the prevention of osteonecrosis of the femoral head, provide mechanical support to prevent pathologic fractures of the femoral head, is the key in the treatment of avascular necrosis of bone cyst.

So, the key of the treatment of femoral neck bone cyst is how to completely remove the femoral neck cyst, relapse prevention, recover femoral head blood supply, preventing femoral head necrosis, and providing mechanical support to prevent pathologic fracture of femoral head.

Hypothesis

We use vascularized greater trochanter grafting transplantation for the treatment of femoral neck bone cyst. We adopt fenestration in the head and neck border line of the caput femoris, thoroughly clear away cyst organization, slice greater trochanter bone flap with vascular pedicle and implant into the windowing, the bone flap survival after implantation may become a part of the femoral head. This can provide good blood supply for femoral head, prevent the recurrence of bone cyst and stop for lack of the femoral head blood to the avascular necrosis and pathologic fracture.

Evaluation of the hypothesis

There are still strong surgical indications for adult big bone cyst in femoral head and neck, reasons are as follows: (1) adult bone cyst bursa wall is sclerous, growth still, and is not sensitive for steroid drugs. So it is impossible for conservative treatment or healing by itself. (2) The older the patient higher the risk of femoral neck fracture. (3) It is easily complicated by cox varus or shortening of the lower limbs, even avascular necrosis of femoral head after the femoral neck pathologic fracture. (4) It is deep in the femoral head and neck, where there are many important nerves and vessels nearby, so it is difficult to puncture. (5) It needs surgery to excision biopsy itself for that cannot be diagnosed by imaging examination. We adopt the method by cutting greater trochanter with vascular pedicle transplantation on curing femoral neck bone cyst. Our surgical method is: patient takes a right lie in the coalition block anesthesia, hip pad high about 60, regular disinfected, draped towels, sterilized sterile skin protective film. Take left hip anterolateral incision which is 8 cm long , in turn, cut open the skin and subcutaneous fascia, and then cut open fascia longitudinally. Separate the lateral femoral artery with the spin in hip in muscle, bone rectus door. Then take a part of muscle and great trochanter bone flap on curettage. Then take a part of muscle and great trochanter bone flap for reservation. Cut and remove part of the joint capsule front wall, and we see rela-

Consequences of the hypothesis

Currently, there are many ways for the treatment of femoral neck bone cysts, such as simple cyst injection of hormone and simple injection of anhydrous alcohol. Injection of autologous red bone marrow transplantation for the treatment, the lesion curettage and bone graft surgery, drilling drainage, etc., and they have also achieved good results, but these methods of treatment are not a complete change in the sclerotin of the femoral head and neck bone, blood circulation and mechanical support issues. If this hypothesis is correct, we adopt a large rotor with vascularized bone graft to the femoral neck bone cyst location, not only increased the sclerotin of the femoral head and femoral head blood supply, but also provided mechanical support and removed the bone cyst to prevent cyst recurrence and femoral head necrosis. However, to show that this hypothesis is correct, ultimately it requires a large number of clinical validation, evaluation and further well-designed.

Conflicts of interest statement

None declared.

References


Please cite this article in press as: Xie H, Zhao D. Vascularized the greater trochanter grafting treatment cysts of the femoral neck. Med Hypotheses (2012), http://dx.doi.org/10.1016/j.mehy.2012.03.019

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