Arthroscopic debridement and lavage of knee joint osteoarthrosis

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Abstract

Recent advances in instrumentation and the growing understanding of the pathophysiology of osteoarthrosis of the knee joint have led to increase the use of arthroscopy for the management of degenerative arthritis of the knee, during this study 50-patient perform to them arthroscopic debridement and lavage from October 2010- April 2014, 30 male patients and 20 female patient in multicenter in Baghdad and Al Najaf cities, patient age range from 40-60 year, all with single knee joints eoarthrosis, our procedure include debridement and lavage of the hypertrophied synovium and osteophyte and subchondral penetration, in most patient short term symptomatic relieve can be achieved with the arthroscopic debridement and lavage of the osteoarthritic knee joint, the greater symptomatic relieve and more persistent pain relieve can be achieved in patient who have acute onset of pain, mechanical disturbance from cartilage or meniscal fragment, normal knee joint axis, and minimal radiographic evidence of degenerative osteoarthrosis.

Key words: Osteoarthrosis, Knee joint, Arthroscopy

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Introduction

In 1941Magnuson introduced the term joint debridement for the removal of hypertrophid synovial membrane, osteophyte, loose bodies and diseased cartilage. The aim of the procedure has been used to get relief of symptoms of the knee joint osteoarthrosis, with emergence of arthroscopy in 1970and advancement in instrumentation, investigator began to study the role of the arthroscopy in the evaluation and treatment of knee joint arthrosis.

In 1990, Burks (1) described three indications for the use of arthroscopy in the treatment of knee joint orthrosis

1- Define pathology

2- Treatment focal lesion

3- Debridement and lavage of the knee joint orthrosis

Although techniques have changed, the goal of surgical treatment remain the same

1- To decrease or eliminate pain

2- To improve function (2)

Jackson et al argued that arthroscopic debridement and lavage offer benefit to patient in the early stage of knee joint arthrosis. The efficacy of the debridement and lavage procedure correlate with the extent of the disease. In one study (8), 37 osteoarthritic knee joint treated by arthroscopic debridement and lavage and physiotherapy were compared with control group of 24 knee joint osteoarthrosis treated by physiotherapy alone , those treated by debridement and lavage and physiotherapy improved to greater extent than did those in the control group , this improvement is maintained at 1 year follow up , although these procedure may improve patient symptoms, they cannot stop the disease and often provide no benefit to patients with severe disease.

Methods

This study includes 50 patients with single knee joint osteoarthrosis, age range between (40 – 60) years, 30 patient males and 20 patient's females between the period from October 2010 – April 2014, they perform to them debridement, joint lavage and physiotherapy of the knee joint, correspond to other control group of 50 patient perform to them physiotherapy alone, mean follow up 1-year post operatively.

Those group with debridement and lavage undergoing arthroscopic visualization of the knee joint and irrigation by normal saline or Ringer solution , we perform debridement procedure which include excision of the damaged portion of articular cartilage , meniscus ,synovial membrane or damaged ligament found within the joint, the success of the debridement and lavage has been attributed to the decrease in the free particles and damaged portion of cartilage and meniscus that stimulate inflammation of the synovial tissue , causes joint effusion , increase level of proteolytic enzyme in the synovial fluid , and increase collagenolytic activity that causes friability of the articular cartilage (6) , lavage dilute the joint fluid , there by decrease the concentration of degraded enzyme in the knee joint and consequently slowing the catabolism of proteoglycan and collagen, maintaining the integrity of the knee joint (4) , the removal of tissue debris during debridement improve symptoms by reducing the source of irritation of synovial tissue (6), patient with mechanical disturbance caused by cartilage and meniscal fragment have substantial improvement in function and symptoms when these

fragment are removed by arthroscopic debridement (7), we find the benefit from the debridement and lavage correlated with the extent of the disease.

Results

The result of this study is comparable to the control group of patient, 50%of the study group get benefit while 20%get benefit of the control group patient, 30%get no benefit in the study group while 80% get no benefit from the control group, 20%from the study group get temporally benefit and we find that there is clear relationship between the severity of the disease and the outcome of the result of the treatment, according to this result we find that the good prognostic factors:

1- mild osteoarthrosis radiologically

2-normal alignment of the knee joint

3- patient with meniscal injury or chondral injury

while the bad prognostic factor includes:

1-sever osteoarthrosis radio logically

2-high level of valgus or varuse

3- chronic inflammatory disease with osteoarthrosis

Discussion

According to this study we find that 50% of patients under this study who perform to them debridemo and lavage get improvement in pain and range of movement of the knee joint and we find that those patients under this study had agood prognostic factors which is mentioned in the result while those 30%of patients under this study who did not get benefit had bad prognostic factors which is mentioned above , while the 20% of patients who get temporarily improvement mostly those with chronic inflammatory joint disease with osteoarthrosis, we belive that the cause of that relieve because of the debridement and lavage which cause dilution in the inflammatory factors and with the time the inflammatory factors return to the pre-operative level , Baugmgnetner et al (10) studied the efficacy of debridement procedures on older patients , average age 63 years , arthritic patients who had had no success with other methods of non-surgical treatment and mentioned low activity level and he fined that 52% of

patients get benefit while 39%had no benefit and 9 %get only temporarily benefit and he find that there is clear relationship between the severity of the oosteoarthrosis of the knee and the outcome of the treatment, although these procedures may temporarily improve patients symptoms , they cannot stop the disease process and often provide no benefit to patients with severs disease i.e. those with bad prognostic factors , other studies have attempted to ascertain whether lavage or lavage plus debridement offer better relieve for osteoarthritis of the knee joint (11-14).

In 1986, Jackson et al (11) in randomized study reported 65 patients treated with lavage alone and 137 patients treated with debridement and lavage , of the 65 patients , who treated by lavage alone , 80%showed initial improvement , however this deteriorated to 45 %at 3 years follow up , for the 137 patients treated with debridement and lavage, 88% showed initial improvement at 3 years follow up (12), in contrast to these finding Gibson et al found that patients had some functional improvement after lavage only.

Conclusion

Arthroscopic debridement and lavage of knee joint osteoarthrosisis growing procedures for the treatment of knee joint osteoarthrosis, patient with good prognostic factors had good benefit from the procedures while patients with bad prognostic factors had no benefit from this procedures, some patients get temporarily relieve from the pain, mostly those patients with chronic inflammatory joint disease with osteoarthritis.

Competing interests

The author declares that there is no conflict of interest.

References

1. Burks RT: Arthroscopy and degenerative arthritis of the knee: Areview of literature.Arthroscopy 1990;6 :43-47.
2. Livesleypj,DohertyM,nEEDOFFm, Moulton A:Arthroscopic lavage of osteoarthritic knees./ Bone joint surg Br1991;73:922-926.
3. Evans CH MazzocchiRA, NelsonDD,RubashHE :Experimental arthritis induced by intrarticular injection of allogeniccartilgeneous particles in to rabbit joint . ArthritiesRheum 1984;27 :200-207.

4. Jackson RW, Gilbert JE , Sharkey PF:Arthroscopic debridement versus arthroplasty in the osteoarthritic knee ./Arthroplasty1997;12:465-470.
5. PlankE,JohnsonLL:Dignostic and surgical arthroscopy : The knee and other joint ,ed 2. St .louis ,M0:CV Mosby ,1980.
6. Sergio Ayala, Peter G. Thury, Rui Chena, Jone A. Fishbein. Over expression of IL-32 in rheumatoid arthritis modulates NF-κB activity. American Journal of BioMedicine 2015; 3(12):793-811.
7. Jackson RW, MaransHJ ,Silver RS:Abstract :The arthroscopic treatment of degenerative arthritis of the knee ./Bone Joint surg Br 1988;70:332.
8. Gibson JN White MD, Chapman VM , Strachan PK :Arthroscopic lavage and debridement of the knee /Bone joint surg Br 1992;74 :534 -537 .
9. Edelson R ,BurksRT,Bloebaum RD : Short –term effect of knee wash out for osteoarthritis .Am /sportMed 1995 ;23 :345 -349 .
10. Gross DE, Brnner SL. Esformes I,Gross ML: Arthroscopic treatment of degenerative joint disease of the lnee. Orthopsdic 1991;14:1317-1321.
11. Jonathan A. Serody, Kerry R. Russell, Rui Chen, Mark B. Ferrara. Over expression of IL-32β- exaggerated myocardial injury after ischemia and reperfusion in mice model. American Journal of BioMedicine 2019;7(2):57-69.
12. Hiraki J, Kumar MB. Rare presentation of systemic lupus erythematosus (SLE): a case report" style. American Journal of BioMedicine 2017;5(3):118-124.
13. Bayat N,Rezaei A, Alishiri G, Safiabadi M. The relationship between fasting and rheumatologic and inflammatory markers in patients with rheumatoid arthritis. American Journal of BioMedicine 2016;4(6):213-218.
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