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Osteophytes above fifty years, prospective study

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Abstract

Objectives: The purpose of this study is to determine whether osteophytes are part of aging process or a cause of disease.

Patients and Methods: This was observational study of 226 cases, lasted from June 2018 to March 2019, they were (71) male and (155) female, (mean 1.69), ranging in age from (2-81) years, (mean 45.99). Referred from outpatient clinic from Ibn Sina teaching hospital to radiology department, in Mosul city, having different complaints of pain including cervical pain, backache, knee pain, heel pain, trauma, fall from height, motorcycle accident, and other painful conditions.

Results: We found three groups of patients, group 1 (< 25 years) had no osteophytes, group 2 (26-49 years) had osteophytes less than osteophytes of group 3 (> 50 years).

Conclusion: Osteophytes are common above age of 50 years, not because of disease but coming with age.

Keywords: Osteophytes, disease, backache

Introduction

Being the most common musculoskeletal progressive condition, It is estimated that the prevalence of knee osteoarthritis among adults 60 years of age or older is approximately 10% in men and 13% in women, making knee osteoarthritis one of the leading causes of disability in elderly population [1]. An osteophyte is 'a fibrocartilage- capped bony outgrowth.

There are three types of osteophytes:

1. The traction osteophytes at the insertion of tendons and ligaments.
2. The inflammatory osteophytes, represented by the syndesmophyte at the insertion of ligaments and tendons bone as can be seen in ankylosing spondylitis; and
3. The genuine osteophyte or osteochondrophyte (chondro-osteophyte) arising in the periosteum overlying the bone at the junction between cartilage and bone [2].

We shall talk about genuine osteophyte, which occur with age. We did this study because we think the osteophytes are aging process and not the cause of disease, this process is going on in our body with age such as loss of elasticity in blood vessels (atherosclerosis) and loss of elasticity in tendons and whitening of the hair. According to ACR criteria of osteoarthritis, all patients should be above 50 years to enter the criteria. Presence of knee pain along with at least three of the following six items can classify the knee osteoarthritis in the patients [3].

- Age > 50 years old
- Morning stiffness < 30 minutes
- Crepitus on knee motion
- Bony tenderness
- Bony enlargement
- No palpable warmth

In addition, many doctors have the idea 'if there is joint pain, they call it 'osteoarthritis' even if patient is young (below 25 y), so the patient puts the idea in his mind (I have osteoarthritis).

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Literature review: In pathophysiology of osteophytes; when articular cartilage prone to damage, by wear and tear or other pathology, transforming growth factor- β promotes cartilage repair resulting in endochondral ossification and osteophyte formation [4]. More severe cartilage lesions were associated with larger osteophyte size [5].

In knee osteoarthritis, osteophytes bring stability to knee by increasing the joint surface area [6]. Age estimation from skeletal remains important step in forensic biological identification [7], they use 'age estimation equations' by calculating the length of vertebral osteophytes' so osteophytes not appear at younger age groups.

They appear from 22 years in cadaver not in X-rays. Aging changes in the musculoskeletal system increase the propensity to osteoarthritis but the joints affected and the severity of disease closely related to other osteoarthritis risk factors such as joint injury, obesity, genetics, and anatomical factors that affect joint mechanics [8]. A great number of individuals with structural osteoarthritic joint changes have few or no symptoms [9], furthermore, radiologic spondylotic changes increase with patient age; 70% of asymptomatic persons older than 70 years have some form of degenerative change in the cervical spine [10]. Several studies have found an association between lumbar spondylosis and low back pain, but others have not. Whether lumbar spondylosis causes low back pain remains controversial [11], and There are mixed evidence for the association of lumbar disc degeneration with chronic mechanical low back pain and disability [12]. Most older participants with a high suspicion for clinical hip osteoarthritis (groin or anterior thigh pain and/or painful internal rotation) did not have radiographic hip osteoarthritis, suggesting that in many cases, hip osteoarthritis might be missed if diagnosticians relied solely on hip radiographs [13].

Patients and Methods

Lain X-Rays of the cervical, or lumbar spines, or both knee joints, or both heels of (226) patients were included in this study. They were (72) male and (154) female. Ranging (2-81) years mean (45.99), patients were referred to the Radiology Department of Ibn Sina Teaching Hospital in Mosul city from the Outpatient Department coming for different complaints including cervical pain, backache, knee pain, heel pain, trauma, fall from height, motorcycle accident, and other complain conditions.

Those patients examined by X-ray machine ECORAY of 125 KV & 500 mA & processed by CR machine Carestem radiographs judged positive for osteophyte when they showed definite bony projection from articular surface of the previous mentioned joints of one or more vertebrae or knee joint or calcaneus bone. Specialist in radiology examined all the films carefully. A full record of the patient's complaints, the result. of the examination are put in schedule shared with other researcher by net, the full name, age, complain, area of examination, positive & negative result are included and divided into 3

groups.

Statistical tests using descriptive statistics including, means, standard deviations, and spearman's rho correlation test, we defined $P < 0.05$. Significant. All statistical analyses were performed using the SPSS software package (SPSS for Windows, version 25, IBM Corp., Armonk, NY, USA).

Results: we divided patients into three age groups.

1. Group 1; all (37) patients below 25 years of (48), body sites had no osteophytes, as shown in table below.

Table 1: Number of patients.

Descriptive Statistics			
	N	Mean	Std. Deviation
Gender	37	1.57	.502
C. spine	8	1.00	.000
L spine	17	1.00	.000
R knee	3	1.00	.000
L knee	0		
R heel	7	1.00	.000
L heel	7	1.00	.000
Valid N (listwise)	0		

2. Group 2; (60) patients between (26-49) years, having no osteophytes in more than half of them, all complaining of pain.

Table 2: Gender and Age group.

Gender * Osteophytes Group 2 (26-49) Years				
Count				
		Osteophytes		Total
		N	P	
Gender	Male	17	5	22
	Female	35	23	58
Total		52	28	80

3. Group 3: patients above 50 years were 129 patients, osteophytes seen in multiple body areas, osteophytes seen in 123 body sites. & no osteophytes seen in 50 areas of body of painful cervical, lumber, knees or heels.

Table 3: Gender and age above fifty years.

Gender * Osteophytes Above 50 Years				
Count				
		Osteophytes		Total
		N	P	
Gender	Male	12	30	42
	Female	38	93	131
Total		50	123	173

In comparing presence of osteophytes between group2 and group 3, P value ($> .000$) was highly significant between them.

Table 4: Correlation, Coefficient.

		gender	osteophytes	FREQ
Spearman's rho	gender	1.000	.000	.801**
	Correlation Coefficient			
	Sig. (2-tailed)		.998	.000
	N	253	253	253
osteophyte	gender	.000	1.000	.392**
	Correlation Coefficient			
	Sig. (2-tailed)	.998		.000
	N	253	253	253
FREQ	gender	.801**	.392**	1.000
	Correlation Coefficient			
	Sig. (2-tailed)	.000	.000	
	N	253	253	253

** . Correlation is significant at the 0.01 level (2-tailed).

Discussion

All (37) patients below 25 years of (48), body sites had no osteophytes; we could not find similar study, to compare it to our results, which may be present. Also number below 25 years was too small to decide 'no osteophytes below this age' and need larger number. In Group 2; (60) patients between (26-49) years, all complaining of pain but having no osteophytes in more than half of them, 52 body areas having no osteophytes and 28 have osteophytes, these results was similar to results of Abdus Salam *et al.* who examined (1000) cervical spine x-ray and found that "correlation between the degree of radiographic changes and severity of pain is poor" [14]. In lumbar region, there are many sources of pain, vertebral discs, neural compression, intervertebral ligaments, facet joints, ligamentous sprain, muscle spasm, sacroiliac joints, defects of the lumbar pars interarticularis (8% of back pain) or others, according to the Arthritis Foundation, spinal osteoarthritis may affect as many as 75% of everyone over the age of 60 [15]. Posterior vertebral osteophytes are less common and only rarely impinge upon the spinal cord or nerve roots [15]. Also in DISH, the patient may has no pain, but the X-ray shows features of ankylosing spondylitis due to heavy osteophytes. Furthermore, same thing happen for knee pain, 'pain in one knee which is in grade 2 and other knee in grade 3 (osteophytes with narrowing joint space, but without pain'. This was also seen in conclusion study conducted by Ali Guermazi *et al.*; 'MRI shows prevalence of at least one type of MRI detected pathology ("any abnormality") was high in both painful (91%) and painless (88%) knees. Regardless of the definition of pain used [16]. Furthermore, in a good number of patients, we found right heel pain (they call it calcaneal spur) has osteophytes and other heel has spur too, so osteophytes maybe not related to pain, or we found the painful foot has no osteophyte and the other silent heel has osteophytes. Draghi *et al.* were concluded that the key radiological features that differentiate the groups were not spurs but rather changes in the soft tissues [17].

Conclusion

Osteophytes are common above age of 50 years, not because of disease but coming with age.

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