

To study association of knee pain and back pain in patient attending orthopedic OPD in GMC Nagpur.

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I. Introduction:

Knee pain and back pain is the commonest complaint of the patients attending orthopedics outpatient department and a major cause of work loss in young individuals. Determining the underlying cause of knee pain can be difficult, in part because of the extensive differential diagnosis.^[1] In elderly population due to senile and postmenopausal osteoporosis, both lumbar spondylosis and knee osteoarthritis is quite common. But in middle aged adults without much degenerative changes in knee, patients suffering from knee pain are misdiagnosed as osteoarthritis of knee. Clinical criteria for classification of idiopathic osteoarthritis of the knee were developed through a multicentre study group involving 130 patients with osteoarthritis and 107 comparison patients. Comparison diagnoses included rheumatoid arthritis (RA) and other painful conditions of the knee exclusive of referred pain from back or para-articular pain.^[2]

Noxious stimulation of the intervertebral disc may result in low back and referred extremity pain. The distal extent of pain produced depends on the intensity of stimulation. Disc stimulation may reproduce pain that extends to below the knee.^[3] Although many of the times knee pain comes as referred pain from lumbar spine. In the study by *Tsuji et al*, they found that 58% patients of knee pain felt low back pain within the previous three months. They showed an association between sacral inclination and patello-femoral joint pain and its occurrence in the elderly.^[4] However, the association between back pain and knee pain still remains unclear.

II. Review of literature:

Joint pain in the back and knees is a major health problem throughout the world including the United States. Although low back pain and knee osteoarthritis present a substantial burden to society, the majority of the literature has focused on single joint problems. Hence, the relationships between low back pain and knee osteoarthritis remain relatively unknown. The study by D Burnett attempted to understand both the temporal and biomechanical relationships between knee osteoarthritis and low back pain. Once temporal and biomechanical relationships between specific causes of joint pain are described, interventions can be developed to prevent disability associated with single joint pain potentially progressing to multiple joint pains.^[5] Muraki et al showed that specific overweight-elevation associations were observed for knee pain in a rural mountainous region. Lower back pain and knee pain were significantly associated with multiple falls in women.^[6] Muraki et al also revealed that low back pain has a larger impact than knee pain on quality of life.^[7] In golfers with chronic low back pain reduced back endurance was associated with significant inhibition of the knee extensors, indicating that this muscle group cannot be activated to a full extent. These findings suggest a possible association between back extensor fatigability and knee extensor dysfunction in male golfers with chronic low back pain.^[8] In the subjects aged 60 years and older, the decrease of back muscle thickness was significantly associated with low back pain and the decrease of anterior femoral muscle volume was significantly associated with knee pain. Study by Mika Hangai et al suggests that strengthening back muscles and the quadriceps femoris muscle may be effective for low back pain and knee pain.^[9] low back pain patients with pain referral to the legs were more severely affected than those with local low back pain, and patients with signs of nerve root involvement were the ones most severely affected.^[10]

Aims and Objectives:

1. To study percentage of patient of knee pain attending the Orthopaedic OPD.
2. To find association between knee pain and back pain in middle age patients without significant osteoarthritis of knee.

III. Materials and Methods:

This study was conducted as an outpatient based observational Cross sectional study in orthopedic department of GMC Nagpur. Total of 306 patients without prior history of recent trauma attended orthopedic outpatient dept in the month of April 2018. We included 39 patients with knee pain as chief complaint in the age group of 30 to 60 years. Pregnant women were also excluded.

We evaluated the patients in daily orthopedic outpatient department on their complaints, examination findings and kept a record of these after the informed consent of the patients. The findings were tabulated and as per statistical methods i.e. Chi-square test the association was calculated.

IV. Observation and Result:

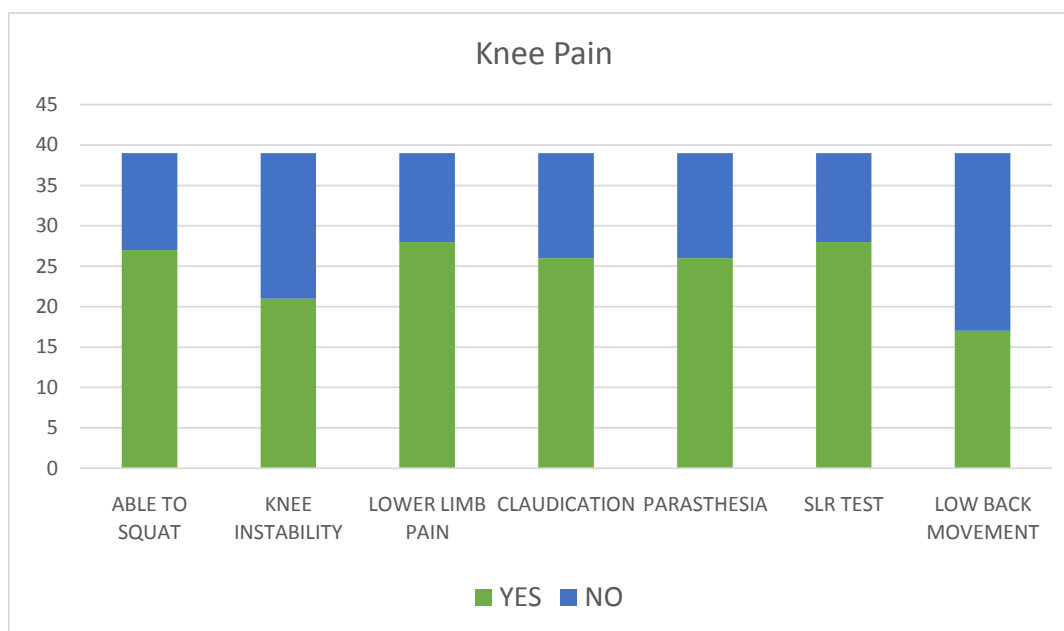
In our study we found that **12.74 %** of patient without trauma attending orthopedic outpatient department have knee pain as major symptom. Out of those with knee pain as major symptom, **82%** patients have back pain. As per statistically method (chi square test) there is significant strong associations between back pain and knee pain (**p < 0.0001%**). The same is depicted in the following (table 1).

Table 1				
		KNEE PAIN		
		YES	NO	TOTAL
B A C K P A I N	Y E S	32	11	43
	N O	7	256	263
	T O T A L	39	267	306

Also we have observed that 69.23 % of patients with knee pain are able to squat (table 2), 53.84 % of them have knee instability (table 3), 71.79 % of them have lower limb pain and claudication (table 4 and 5), 66.66 % of them have paraesthesia (table 6). 66.66% of patients with knee pain are having pain free movement (table 7), 71.79% of them are having full knee movement (table 7). 71.79 % of them have positive SLR (table 8), 43.58 % of them have painful back movement (table 9).

Table 2		
KNEE PAIN		
ABLE TO SQUAT	YES	27
	NO	12
	TOTAL	39
TABLE 3		
KNEE PAIN		
KNEE INSTABILITY	YES	21
	NO	18
	TOTAL	39
TABLE 4		
KNEE PAIN		
LOWER LIMB PAIN	YES	28
	NO	11
	TOTAL	39
TABLE 5		
KNEE PAIN		
CLAUDICATION	YES	28
	NO	11
	TOTAL	39

TABLE 6			
	KNEE PAIN		
PARAESTHESIA	YES	26	
	NO	13	
	TOTAL	39	
TABLE 7			
	KNEE PAIN		
	FULL	RESTRICTED	TOTAL
PAINFULL	04	09	13
PAINFREE	24	02	26
TOTAL	28	11	39
TABLE 8			
	KNEE PAIN		
STRAIGHT LEG RAISE TEST	YES	28	
	NO	11	
	TOTAL	39	
TABLE 9			
	KNEE PAIN		
LOW BACK MOVEMENT	YES	17	
	NO	22	
	TOTAL	39	



V. Discussion:

Knee pain and back pain is a regular finding in orthopedics outpatient department but association between them is not given due recognition in literature. Our study showed significant association between back pain and knee pain. This might be due to common causative factors of knee and back pain or it can also be due to diseases of back causing pain in knee and vice versa. Therefore the meticulous clinical examination is necessary to ascertain the actual cause of knee pain.

From our study, we could also found that patients with knee pain usually have lower limb radicular pain or claudication or paraesthesia^[10] They also have painful back movement and positive SLR. These neurological compression features suggest that knee pain can also be one of those neurological pain symptoms. In the same regard, we have found significant numbers of patients with knee pain having full and pain free movements suggesting that pathology might not be in the knee joint and rather somewhere else. This can be explained by the fact that in persons with low back pain reduced back extensor muscle endurance was associated with significant inhibition of the knee extensor muscles. Also that back extensors muscle weakness is generally associated with quadriceps femoris muscle weakness^[8, 9]. From these findings, we propose that knee pain in middle aged patients without significant osteoarthritis could actually be referred pain from the lumbar spine. However, the limitations of our study being small sample size observational study, further research need to be

done in detail in still more systematic manner on the causes, investigation and treatment of these back and knee problems.

VI. Conclusion:

There is significant association of knee pain and back pain in middle aged patients without osteoarthritis. The knee pain in these patients is mostly referred from the lumbar spine problems as it appears from our study.

VII. Summary:

Knee pain and back pain is the commonest complaint of the patients attending orthopedics outpatients department and a major cause of work loss in young individuals. Our aim was to study percentage of patient of knee pain attending the Orthopaedic OPD and to find the association between knee pain and back pain in middle age patients without significant osteoarthritis of knee. Total of 306 patients without prior history of recent trauma attended orthopedic outpatient dept in one month. We included 39 patients with knee pain as chief complaint in the age group of 30 to 60 years.

We evaluated the patients in daily orthopedic outpatient department on their complaints, examination findings and kept a record of these after the informed consent of the patients.

In our study we found that **12.74 %** of patient without trauma attending orthopedic outpatient department have knee pain as major symptom. Out of those with knee pain as major symptom, **82%** patients have back pain. As per statistically method (chi square test) there is significant strong associations between back pain and knee pain (**p < 0.0001%**) in middle aged patients without osteoarthritis. The knee pain in these patients is mostly referred from the lumbar spine problems as it appears from our study.

Suggestion:

There is strong association between knee pain and back pain not studied earlier. We tried to document this association and on the basis of this pilot study further thought process should be initiated for detail assessment and research on causes, investigation and treatment of these problems.

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