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## IDIOPATHIC GENU RECURVATUM AS A CAUSE OF KNEE PAIN SIMULATING THE "INTERNAL DERANGEMENT SYNDROME"

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The various local mechanical causes of pain in the knees have been the subject of much attention and many published articles. The "internal-derangement-of-the-knee" syndrome has become an accepted clinical entity manifested by pain in the knee joint—medial or lateral—on weight bearing against flexion or rotation resistance with or without episodes of "locking" of the affected joint, occasionally associated with increased fluid in the joint, usually associated with a history of injury, and a sensation by the patient that the knee "gives away." The most frequent causes of this condition are tears of the menisci, tears of the collateral or cruciate ligaments, cartilaginous loose bodies (osteochondritis dessicans), or hypertrophy of the fat pads.

There have been observed, during the past six years, a series of patients with symptoms simulating those described above; but without any history of injury, and with minimal findings on examination except for a non-specific genu recurvatum, the correction of which by simple mechanical means has resulted in relief of the knee symptoms.

Fifteen such cases have been observed and treated during the past six years. Six of these cases were seen in another center; and only the nine cases seen at Henry Ford Hospital are described in this report. These cases are presented as examples of another local mechanical cause of pain in the knees representing "pseudo-internal-derangement-of-the-knee" syndrome which responds to simple mechanical measures. The details of the symptoms and findings on physical and x-ray examination in this group of cases are presented in Table I. These data indicate certain facts. All but one patient were males. The age of the patients ranged from 16 years to 44 years, with an even "spread" in the age levels. All patients were white; but this probably represents a "sampling error" rather than a racial tendency. Only one patient gave any history of trauma, and that was minimal. The duration of symptoms was from 6 months to 5 years. None of the patients ever experienced any "locking" of the involved knee. Roentgenograms in all cases revealed no abnormalities in the involved knee joints, except in one case in which there was noted slight changes in the patellae compatible with chondromalacia patellae. This was the same case mentioned previously as being the only one in which there was a history of even minimal trauma. In all but two cases the knee symptoms were bilateral. The symptoms in these cases were similar—aching anteriorly about the knees, or in the knees and calves; and in one instance a feeling of instability as well as pain in the knees. In each instance physical examination revealed no relaxation of the collateral or cruciate ligaments; and no swelling or increased free fluid in the involved joints. Only

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TABLE I  
 Details of history, x-ray findings, and examinations in cases of "pseudo-internal-derangement-of-the-knee"

CASE	AGE	SEX	RACE	TRAUMA	SYMPTOMS				EXAMINATION					FOLLOW-UP TIME	SYMPTOM FREE	TREATMENT		
					DURATION	LOCKING	PAIN	BILATERAL	GENU RECURVATUM		TENDERNESS	LIG. RELAXED	FLUID OR SWELLING				CREPITATION	X-RAY
									L.	R.								
116	M	W	0	1½ yrs.	0	Aching Anteriorly	+	10° +	10° +	0	0	0	0	Neg.	1 month—seen in E.N.T. Clinic after 2 yrs. and had no symptoms	+	¼ inch elevation heels	
240	M	W	0	1 yr.	0	Aching Anteriorly	+	+	+	Lateral	0	0	0	Neg.	1 month	Rt. 0 Lt. +	¼ inch elevation heels	
346	M	W	0	5 yrs.	0	Aching calves & knees	+	+	+	0	0	0	0	Neg.	1 month—seen in Surg. & C.R. & legs O.K. 23 months	+	¾ inch elevation heels	
435	M	W	0	½ yr.	0	Aching Anteriorly	+	10° +	10° +	0	0	0	0	Neg.	9 months—House M.D.	+	¼ inch elevation heels	
544	M	W	0	1 yr.	0	Aching knees & calves	+	10° +	10° +	0	0	0	0	Neg.	1½ months—grocer—on feet 13 hrs. daily	+	¼ inch elevation heels	
630	M	W	0	½ yr.	0	Aching—left knee	0	+	0	0	0	0	+	Neg.	1 month	+	¼ inch elevation heels	
725	F	W	0	5 yrs.	0	Bilateral Knee pain on weight bearing	+	+	+	0	0	0	++	Neg.	7 months	+	Cuban heels for increased elevation	
826	M	W	+	10 mos.	0	Pain in knees on running and walking	0	0	+	+	+	0	0	+	Minimal chondromalacia patellae	+	¼ inch elevation heels	
917	M	W	0	2 yrs.	0	Pain—"knees give way"—afraid to run	+	+	+	0	0	0	0	Neg.	Seen in E.N.T. Clinic after 2 yrs.—knees asymptomatic	+	¼ inch elevation heels	

three cases had any crepitation on motion; and only two had any tenderness. The involved knee in all cases had 10 degrees or more genu recurvatum.

Treatment in all these cases consisted only in correcting the genu recurvatum by elevating the heel on the affected side. The time of follow-up was from one month to two years; and by last report all patients remained asymptomatic while carrying on their usual activities. It is felt that the symptoms probably arise from low-grade, chronic strain of the knees resulting from the mild genu recurvatum. It is possible that this symptom-complex was not seen in women (only one case in fifteen) because the high heels in prevalent use on women's shoes function to prevent such chronic strain in women with mild genu recurvatum in the same manner as did the elevations of the heels in the present cases.

#### *SUMMARY*

There has been presented a group of patients with knee-joint symptoms simulating the "internal derangement syndrome"; but in whom the usual history of trauma, instability and/or "locking" of the involved knee were absent; and findings on examination, except for mild genu recurvatum, were minimal. These patients all became asymptomatic with simple mechanical correction of the genu recurvatum. It is believed that these cases of "pseudo-internal-derangement-of-the-knee" are important as representing another example of a local mechanical cause of pain in the knees which responds to conservative, non-surgical measures.