



Introduction

- Discoid Meniscus (DM) is a congenital variant that typically affects the lateral meniscus.
- These abnormal variants contain disorganized collagen fibers and can prevent normal anatomic contact between the knee's articular surfaces, causing mechanical damage¹.
- Lateral discoid menisci have been reported to occur at a rate of 3-5% in the general population, increasing to 15% of all knees in Asian populations^{2,3}.
- The most commonly used classification system for discoid meniscus, proposed by Watanabe et al., groups discoid menisci based off of stability and arthroscopic appearance⁴.
- Despite the presence of multiple classification systems for DM, no system has demonstrated utility in treatment planning⁵.

Methods

- We searched the orthopedic database at our institution for patients who underwent surgical treatment for lateral discoid meniscus between 1991 and 2017.
- Clinical records were reviewed to determine the type of DM surgery performed (surgery with or without repair) as well as DM morphology, stability, tear presence, tear location, and tear type.
- Stability was classified based off of operative records describing discoid meniscus stability with arthroscopic probing.
- Univariate associations between DM characteristics and surgery type were calculated and a logistic regression model of surgery type was created.
- The categories "tear presence" and "tear location" were combined to create a new variable, "tear," consisting of 3 categories (no tear, central tear, peripheral tear), for use in logistic regression models of surgery type.
- Based off of univariate and logistic regression models, we propose a new classification system for discoid meniscus.

The Utility of Stability and Tear Location in a Classification **System for Discoid Meniscus Surgical Planning**

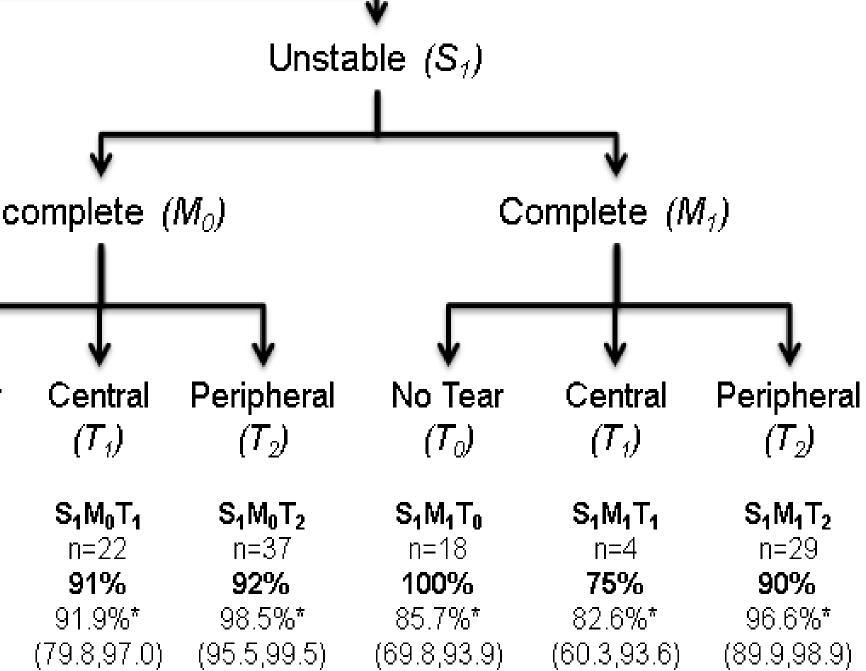
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Tables and Figures

	Characteristic	Category	Total (n=434)	Surgery With Repair, n=204, n (%) or Med (P25, P75)	Surgery Without Repair, n=230, n (%) or Med (P25, P75)	P-value*
	Stability	Stable	225 (54)	22 (10)	203 (90)	<0.001
		Unstable	192 (46)	179 (93)	13 (7)	
	Morphology	Incomplete	255 (68)	120 (47)	135 (53)	0.74
		Complete	120 (32)	54 (45)	66 (55)	
	Tear Presence	No tear	149 (34)	63 (42)	86 (58)	0.156
		Tear	283 (66)	141 (50)	142 (50)	
	Tear Location	Central only	131 (54)	30 (23)	101 (77)	< 0.001
	Taxa Dattara	Includes Periphery	113 (46)	85 (75)	29 (25)	0 207
	Tear Pattern	Radial	25 (13)	15 (60)	10 (40)	0.387
		Horizontal Cleavage Bucket Handle	61 (33) 20 (11)	38 (62) 10 (50)	23 (38) 10 (50)	
		Oblique	3 (2)	1 (33)	2 (67)	
		Complex	57 (31)	26 (46)	31 (54)	
		Vertical	1 (1)	1 (100)	0 (0)	
		Longitudinal		3 (38)	5 (62)	
		Degenerative	8 (4)	4 (36)	7 (64)	
	Watanaha Class		11 (6)			<0.001
	Watanabe Class	1	107 (25)	43 (40)	64 (60)	<0.001
		2	231 (54) 43 (10)	101 (44) 37 (86)	130 (56) 6 (14)	
	Gender	4 Male	49 (11) 191 (44)	21 (43) 88 (46)	28 (57) 103 (54)	0.772
	Gender	Female	243 (56)	116 (48)	127 (52)	0.772
	Age at surgery	Years	12.4 (9.3, 14.8)		12.2 (9.0, 14.6)	0.217
	Range	rears	0.1-20.6	2.8-19.9	0.1-20.6	0.217
	**based on Fisher'	s exact or Wilcoxon r	a <mark>nk s</mark> um tests			
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nows all receiving surgery with repair per classification (bolded). (*) Indicates the predicted probability estimates (with 95% Confidence Interval) of surgery with repair based on our logistic model using stability, morphology, and tear. Instability was the main driving force behind receiving surgery with repair. Of note, 100 (23%) of the 4343 patients had incomplete data.



Results

- 1991 and 2017.
- (Table 1).
- only (p<0.001).

Discussion

- discoid menisci

References

- 156
- 96.



 There were 434 knees with discoid lateral menisci that received surgical treatment at our institution between

• In univariate analysis, unstable menisci (93%, p<0.001) and menisci with a tear including the periphery (75%, p<0.001) were more likely to receive surgery with repair

• By itself, instability demonstrated 89% sensitivity and 94% specificity in predicting surgery with repair. • The main effects logistic regression model including stability and tear showed that that the odds of unstable lateral discoid menisci receiving surgery with repair was **133.1 times higher** than stable menisci (p<0.001) while lateral discoid menisci that had a tear including the periphery had 6.54 times higher odds of receiving repair than those that had a tear in the central portion

 Lateral discoid menisci stability and tear location were associated with surgical treatment type in both univariate analysis and logistic regression models (Table 2). • Based on our results and clinical relevance, we propose a new classification system for DM with utility in surgical treatment planning. Menisci are classified by stability (Stable (S0), Unstable (S1)), morphology (Incomplete (M0), Complete (M1)), and Tear (No tear (T0), Central tear (T1), or Peripheral tear (T2)) (Figure 1). • Our proposed new classification system, consisting of

stability, morphology, and tear, is easily remembered and demonstrates utility in predicting surgery with repair for

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