



ASSOCIATION OF SKIN SCAR CHARACTERISTICS WITH INTRA-ABDOMINAL ADHESIONS DURING REPEAT CAESAREAN SECTION

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Introduction: Caesarean section rates are on the rise, and repeat caesarean is the second most common indication. Abdominal scar characteristics might indicate the severity of adhesions due to biological similarities between these healing processes. It can be used as a screening tool in preoperative assessment & proper planning can be done to overcome the difficulties.

Aim & objective: Predicting severe intra-abdominal adhesions and weak uterine scar based on the morphology of skin scar at term repeat caesarean.

Study design: Diagnostic accuracy study

Methodology:

260 women

Skin scar assessment [**MANCHESTER SCORE**]

Adhesions assessment [**KNIGHTLY SCORE**]

Uterine scar grade assessment
[**QURESHI GRADE**]

Total score ≤ 5
(without severe adhesions)

Total score > 5
(with severe adhesions)

Grade 1 & 2
(intact scar)

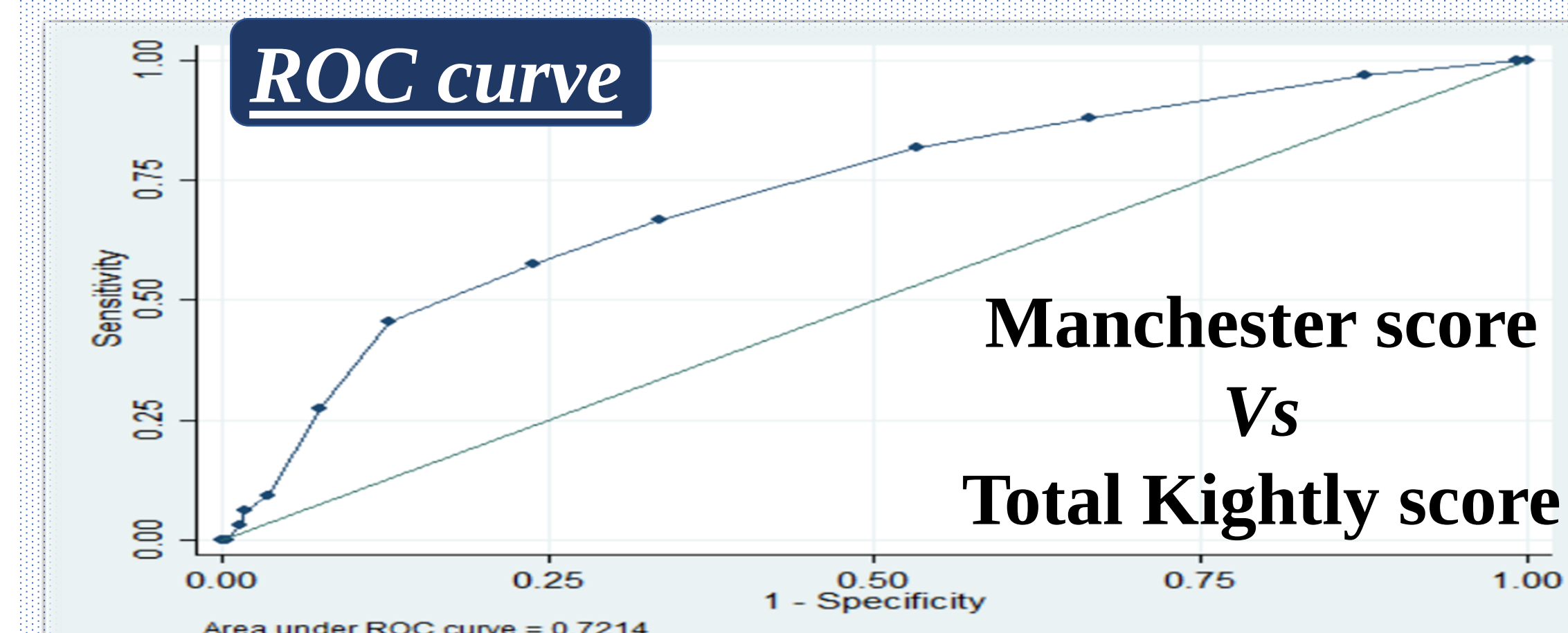
Grade 3 & 4
(weak scar)

Inclusion criteria: Pregnant women with previous one caesarean section undergoing repeat caesarean at term

Exclusion criteria: H/o classical caesarean & previous surgeries, immunosuppressed state, placenta previa, endometriosis

Statistical analysis: Fischer's exact and Pearson Chi-square tests (comparing the groups)
Receiver operating characteristic (**ROC**) curve (cut-off score as a predictor of severe adhesions & weak uterine scar)

Skin scar cut-off score	Adhesions		Uterine scar	
	Sensitivity (%)	Specificity (%)	Sensitivity (%)	Specificity (%)
	95% CI	95% CI	95% CI	95% CI
9	66.6 (48.1 – 82)	66.5 (59.9 – 72.6)	55.5 (38.1 – 72)	65.1 (58.5 – 71.4)
AUC	0.72 (0.62 – 0.81)		0.60 (0.50 – 0.71)	



Results: 165 (63.5%) had adhesions and 95 (36.5%) did not have adhesions. The most common adhesion site was between the uterus and bladder (40.7%). A weak uterine scar was observed in 13.8% and lower age group (< 20 years) was significantly associated with it. A significant association was found between adhesion-related postoperative complications such as fever, bowel distension, prolonged catheterisation and degree of adhesions. **Distortion** of the skin scar had the highest specificity (71.3%), and **texture** had the highest sensitivity (84.8%) in predicting **severe adhesions**. Similarly, the **texture** had the highest sensitivity (72.2%), and the **distortion** had the highest specificity (68.3%) in predicting **weak uterine scar**. A cut-off of **Manchester skin score 9** includes the area under the curve (AUC) of **72% and 60%** in predicting **severe adhesions and weak uterine scar**, respectively. A skin score of 9 was 66.6% sensitive and 66.5% specific, with a positive predictive value (PPV) of 22.4% and a negative predictive value (NPV) of 93.2% in predicting severe adhesions. The same score was 55.5% sensitive and 65.1% specific, with a PPV of 20.4% and NPV of 90.1% in predicting weak uterine scar.

Discussion: This prospective cohort study assessed the ability of skin scar features to predict adhesions and uterine scar grade. Various scoring methods are described in the literature for skin scars and adhesions. The proportion of adhesions following abdominal surgeries ranges from 25% to 71%. Similar to our study, various authors observed that 22% of patients had postoperative complications due to adhesions and the colour, appearance (matte vs shiny), contour and distortion of the Manchester score were significantly increased in patients with adhesions. A hypopigmented scar was associated with significant adhesions. There was a higher risk of weak uterine scar in young women. This could be due to the fact that women < 20 years would have a short interpregnancy interval. Further research is required to correlate skin scar features with uterine scar grade.

Conclusion: **Distortion** component of the Manchester score had **71% sensitivity** and **85% specificity** for predicting severe adhesions. The Manchester **cut-off score of 9** had an **AUC of 72%** and **NPV of 93.2%** in predicting severe adhesions.