



COMPARATIVE EVALUATION OF PARASPINAL MUSCLE INJURY BETWEEN SMALL INCISION DISCECTOMY AND DESTANDAU'S ENDOSCOPIC DISCECTOMY FOR LUMBAR DISC HERNIATION.

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Introduction

- Lumbar disc herniation (LDH) is a common cause of low back pain with lower limb radiculopathy or sciatica.
- The most common site for LDH is L4-L5 or L5-S1 in adult population.
- Surgical Procedure is indicated if the symptoms persists even after 6 weeks of conservative treatment.
- Microdiscectomy is the gold standard surgical procedure but the disadvantages includes larger incision, muscle damage, blood loss and late recovery.
- Endoscopic discectomy and small incision discectomy has small incision, less blood loss, early recovery with less pain, less paraspinal muscle damage and shorter hospital stays.

Aims & Objectives

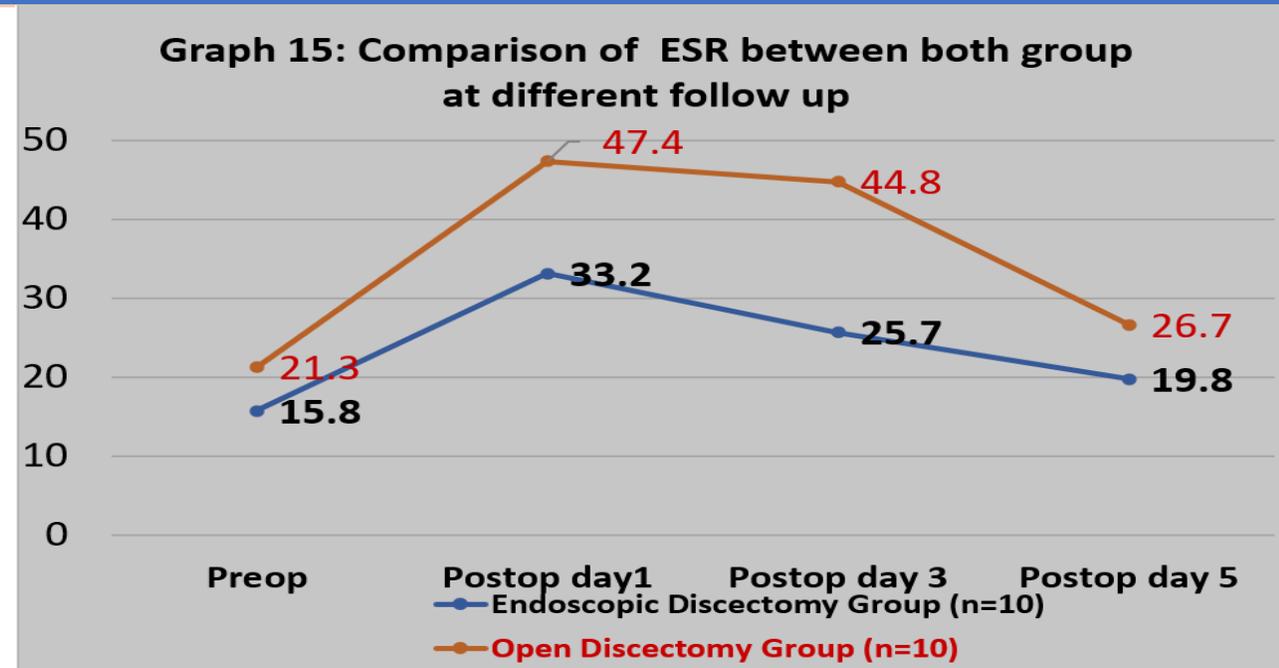
- To compare the extent of soft tissue damage and paraspinal muscle injury caused by Endoscopic discectomy by Destandau's technique and Small incision discectomy by measuring biochemical markers of tissue injury.

Materials & Methods

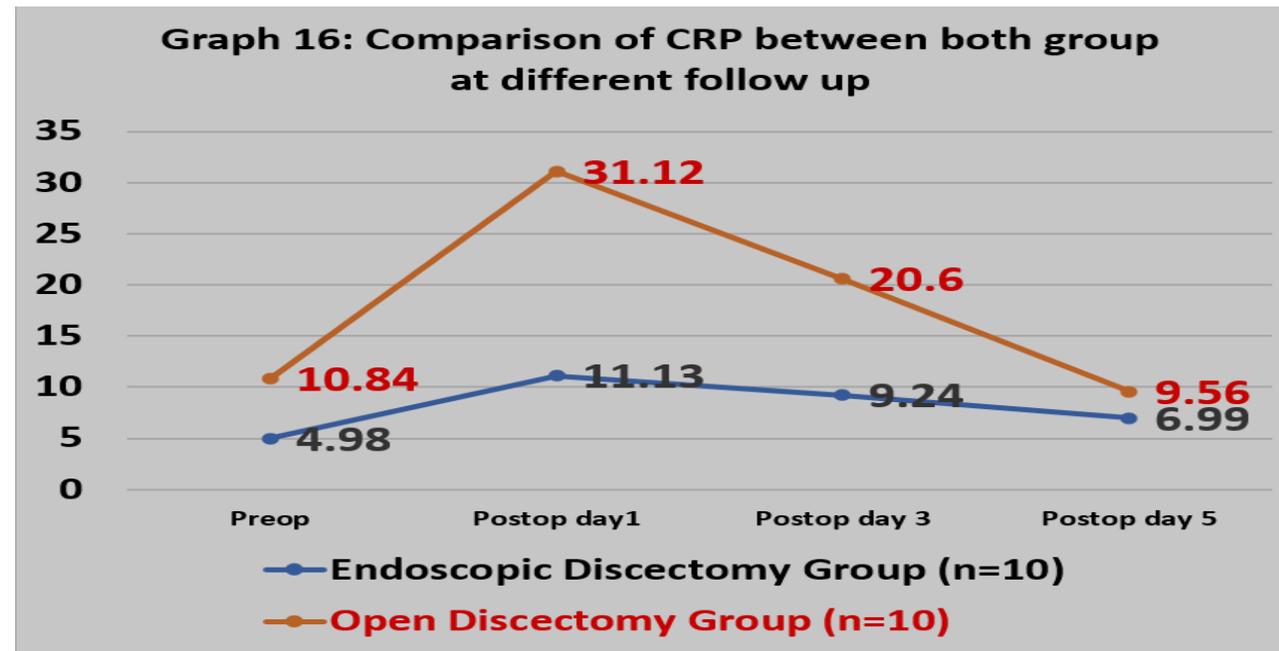
- 15 men and 5 women aged 20 to 55 (mean-37) years with LDH were selected to undergo Endoscopic discectomy by Destandau's technique (n=10) and small incision discectomy (n=10) at Dept of Orthopedics, Lok Nayak Hospital, MAMC from Sep 2018 to Oct 2019.
- The 2 groups were compared with respect to surgical time, intra-operative blood loss, duration of hospital stays, incision size, return to work, intra op/post op complications, functional outcomes by VAS score, ODI score, MJOA score(pre op, at 2weeks, 6weeks, 3months and 6months).
- Tissue injury was measured by ESR, CRP, skeletal muscle specific enzymes CPK-MM, LDH-5 on pre-op, post-op day 1, 3 and 5 by ELISA.

Results and Observations

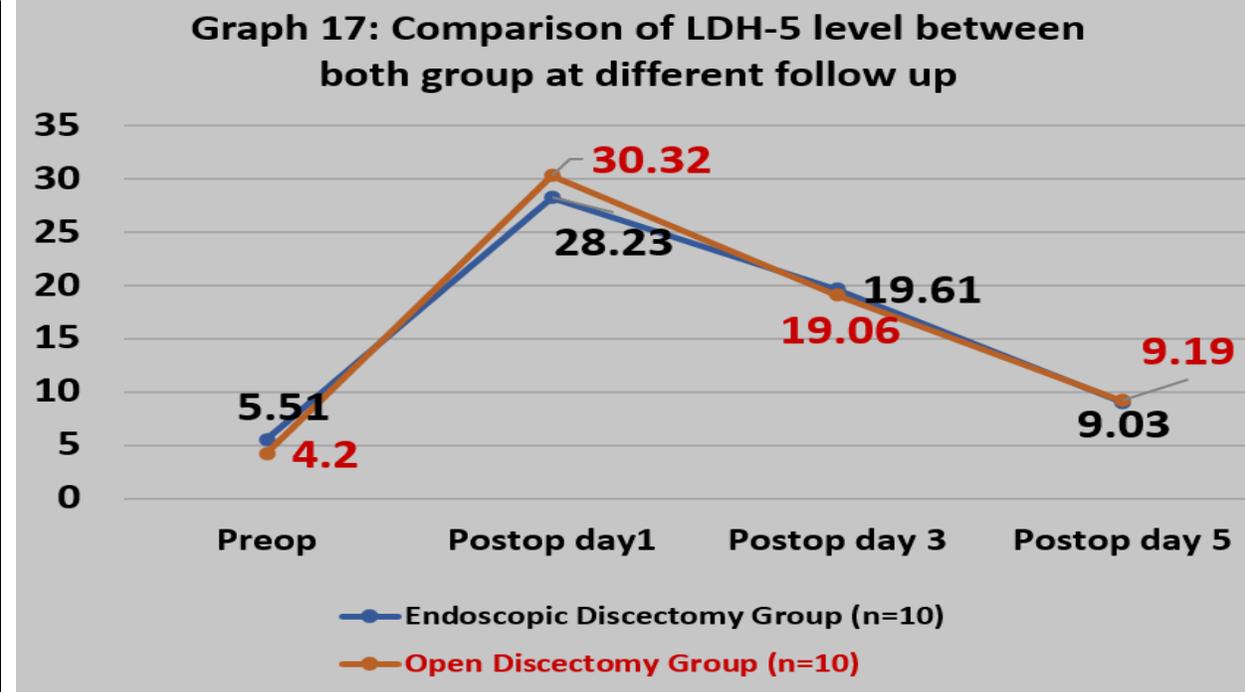
ESR	Endoscopic Discectomy Group (n=10)		Open Discectomy Group (n=10)		P value
	Mean	SD	Mean	SD	
	Preop	15.80	12.12	21.30	
Postop day1	33.20	16.68	47.40	10.05	0.04
Postop day 3	25.70	14.67	44.80	24.41	0.07
Postop day 5	19.80	13.75	26.70	11.45	0.21



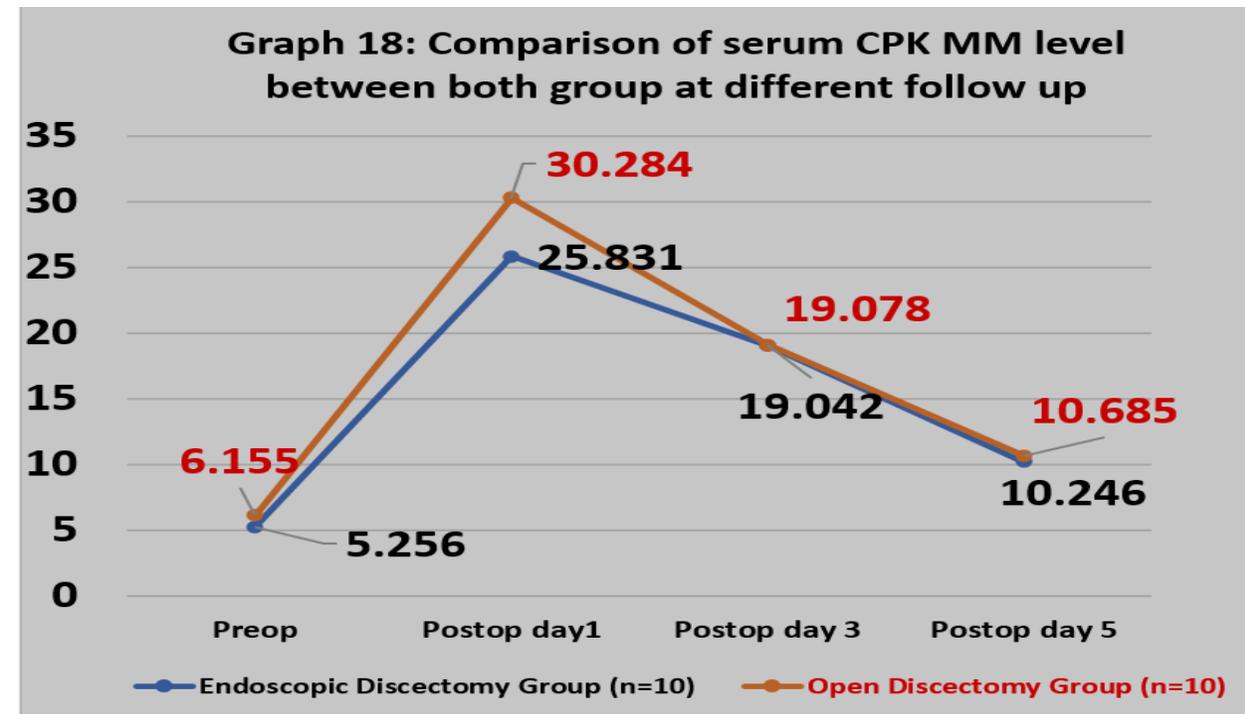
CRP	Endoscopic Discectomy Group (n=10)		Open Discectomy Group (n=10)		P value
	Mean	SD	Mean	SD	
	Preop	4.98	4.05	10.84	
Postop day1	11.13	6.38	31.12	23.61	0.01
Postop day 3	9.24	6.06	20.60	14.61	0.04
Postop day 5	6.99	4.94	9.56	4.25	0.16



LDH-5 level	Endoscopic Discectomy Group (n=10)		Open Discectomy Group (n=10)		P value
	Mean	SD	Mean	SD	
	Preop	5.51	2.60	4.20	
Postop day1	28.23	6.86	30.32	8.90	0.85
Postop day 3	19.61	6.62	19.06	11.09	0.57
Postop day 5	9.03	1.85	9.19	5.38	0.59



CPK-MM	Endoscopic Discectomy Group (n=10)		Open Discectomy Group (n=10)		P value
	Mean	SD	Mean	SD	
	Preop	5.256	1.752	6.155	
Postop day1	25.831	4.746	30.284	13.199	0.70
Postop day 3	19.042	4.771	19.078	11.915	0.99
Postop day 5	10.246	3.742	10.685	7.640	0.76



Discussion

- ESR and CRP study showed statistically significant difference on post-op D1 but there was no difference found on D3 and D5 b/w these two procedures. This Phenomenon is consistent with **R Sasaoka et al** study.
- CPK-MM and LDH-5 study showed statistically no difference between two procedures.
- **Kawaguchi et al** claimed CPK-MM values is directly correlated to larger exposure and duration of surgery. **K Kotil** concluded that muscle injury depends on retractors usage duration and relaxation time in between.

Conclusion

- There was no significant tissue injury or paraspinal muscle damage found between Destandau's Endoscopic discectomy and Small incision discectomy.
- Both the techniques have same incision size, clinical outcomes which is comparable to published studies

Bibliography

1. Kotil K, Tunckale T, Tatar Z, Koldas M, Kural A, Bilge T: Serum creatine phosphokinase activity and histological changes in the multifidus muscle: a prospective randomized controlled comparative study of discectomy with or without retraction. *J Neurosurg Spine*. 2007;6:121–25.
2. Kawaguchi Y, Matsui H, Tsuji H: Changes in serum creatine phosphokinase MM isoenzyme after lumbar spine surgery. *Spine*. 1997;22:1018–23