

Outcomes of Hybrid TDR/ACDF Versus Multi-level ACDF with 8 to 12 Year Follow-up

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Conflict of Interest

None

Background

- Cervical TDR is gaining popularity for single level conditions and have lower secondary surgery rate vs ADCF.
- When *multi-level* TDR not applicable, *Hybrids* (TDR combined with ACDF) is individualized tx for those with a level(s) not well suited for TDR combined with another level that is.
 - Example: one level is subacute hydrated HNP with only mild disc space narrowing adjacent to level with kyphosis and spondylitic central stenosis due to “hard” disc and narrow interbody height.
- Short-term studies support Hybrids have good outcomes and *may* have lower secondary surgery than multi-level ACDF.

Purpose

- Compare long-term (8 -12 year) outcomes of consecutive “off-label” Hybrid constructs to multi-level ACDF.
- Multi-level ACDF group is historical consecutive patients with elimination of those with central stenosis, deformity or advanced disc space narrowing (n = 83).
- Single level TDR and ACDF control groups.
- Self-funded, no conflict of interest.

Methods

- TDR devices included mobile core, semi-constrained with fixed dome either central or posterior, and deformable types.
- 61% had Hybrid construct as index procedure, 39% had TDR subsequent to prior ACDF.
- Prospective Outcomes (neck & arm VAS, Pain Drawing, NDI/ODI, pain meds).
- Validated by comparing single level results (n = 69) to IDE studies.

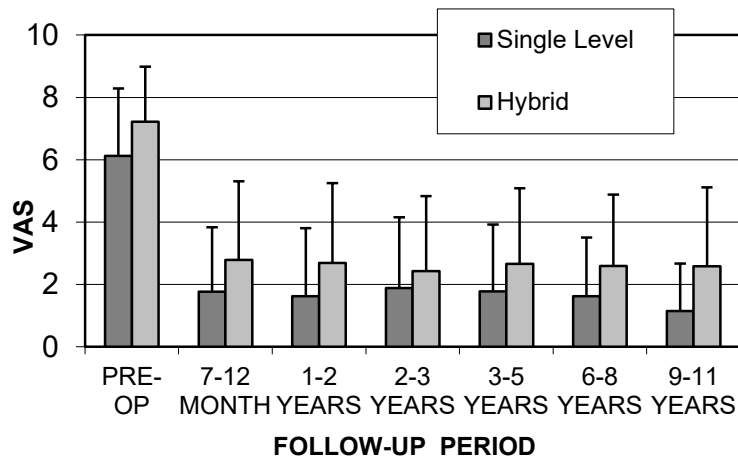


Results

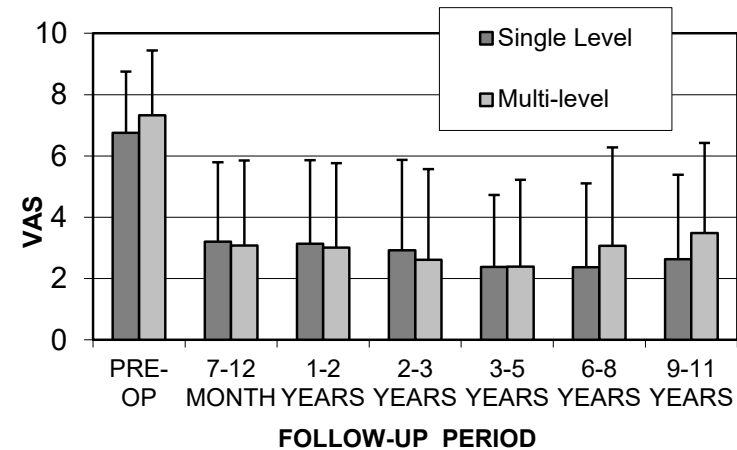
<u>TABLE 1</u>	<u>Single Level TDR (n=69)</u>	<u>Single Level ACDF (n=69)</u>
Age (years, mean +/- SD)	46.5 ± 7.9	44.0 ± 9.7
Female (%)	53	58
Smokers (%)	19	48
Work Comp/Lit (%)	26	33
Duration of symptoms (years)	3.1 ± 5.7	2.0 ± 3.5
	<u>Hybrid TDR (n=83)</u>	<u>Multi-Level ACDF (n=83)</u>
Age (years, mean +/- SD)	51.6 ± 8.8	47.7 ± 8.6
Female (%)	67	70
Smokers (%)	33	42
Work Comp/Lit (%)	24	27
Duration of symptoms (years)	5.7 ± 5.9	3.6 ± 4.6

Outcomes, n=83 Multi-ACDF & Hybrids

TDR NECK PAIN

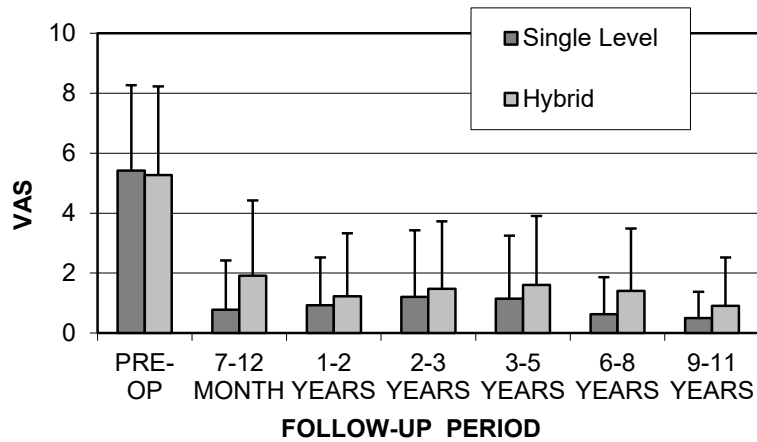


ACDF NECK PAIN

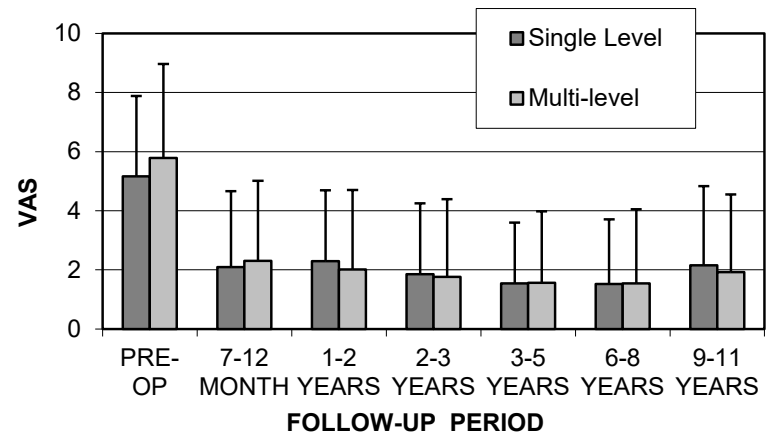


Outcomes, n=83 Multi-ACDF & Hybrids

TDR ARM PAIN

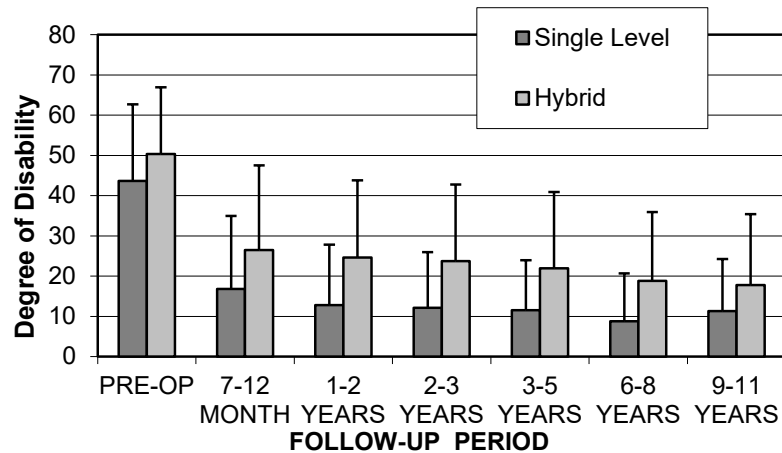


ACDF ARM PAIN



Outcomes, n=83 Multi-ACDF & Hybrids

TDR DISABILITY

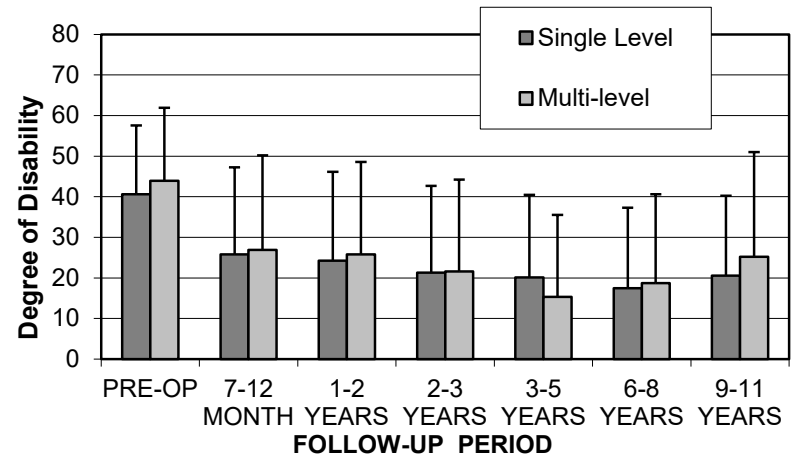


Trajectories interaction:

- ACDF improvement drift down then up
- Hybrid was steady down pattern

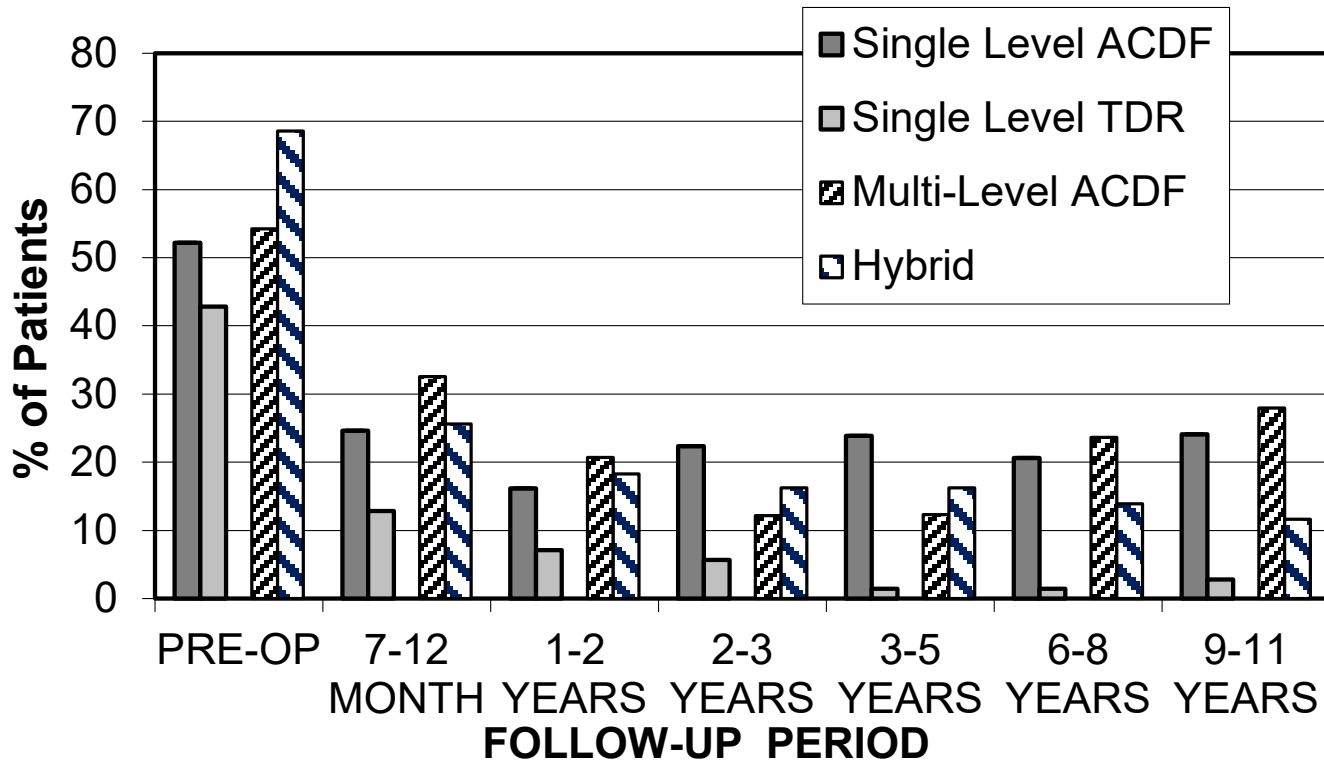
($p = 0.0005$)

ACDF DISABILITY



Pain Medication Use

Opioid Medications



Treatment Success

TABLE 3, Self-report of success

	<u>Hybrid TDR</u>	<u>Multi-Level ACDF</u>
Surgery Successful		
7-12 month follow-up (%)	87	90
1-2 year follow-up (%)	94	85
2-3 year follow-up (%)	93	89
3-5 year follow-up (%)	93	89
6-8 year follow-up (%)	91	89
9-11 year follow-up (%)	95	87
Would repeat		
7-12 month follow-up (%)	92	89
1-2 year follow-up (%)	92	87
2-3 year follow-up (%)	88	93
3-5 year follow-up (%)	90	89
6-8 year follow-up (%)	89	87
9-11 year follow-up (%)	91	88
Recommend to others		
7-12 month follow-up (%)	93	89
1-2 year follow-up (%)	98	89
2-3 year follow-up (%)	90	93
3-5 year follow-up (%)	91	90
6-8 year follow-up (%)	92	89
9-11 year follow-up (%)	91	93

Limitations

- Control ACDF groups are historical.
- Small sample size.
- Single surgeon with consistent technique but results may not be generalizable.
- Not IDE ideal patients, rather real world cases.

Discussion/Conclusion

- Cervical Hybrid is successful surgery for proper indication.
- Outcomes are significantly improved and durable and may slightly favor Hybrids over Multi-level ACDF.
- Results appear valid as the outcomes for single level conditions similar to prior IDE studies.