

Comparing Cortical Trajectory TLIFs Against Pedicle Trajectory TLIFs and Posterolateral Fusions

*A Retrospective Cohort Study
of 90 Day Outcomes*



EMORY

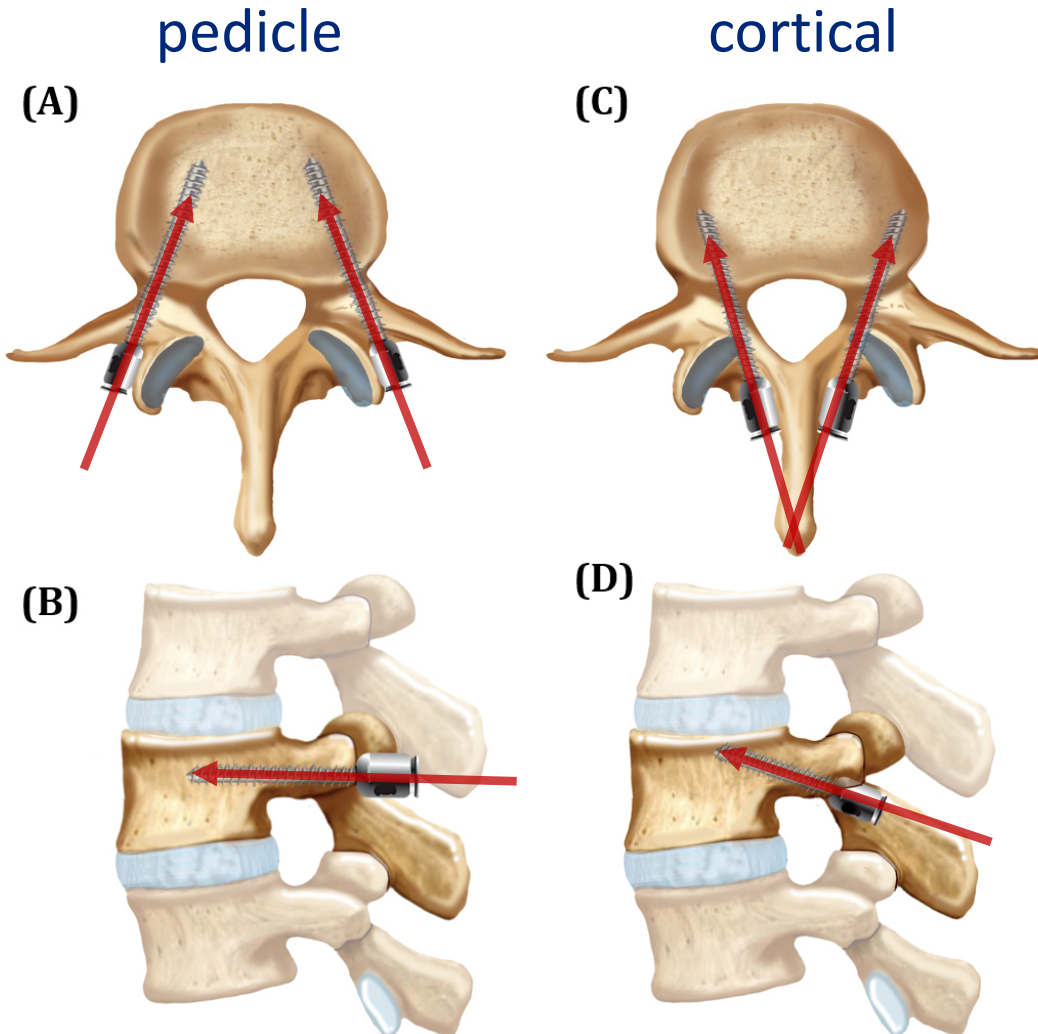
James Malcolm Michael Moore
Falgun Chokshi Faiz Ahmad
Daniel Refai



Disclosures

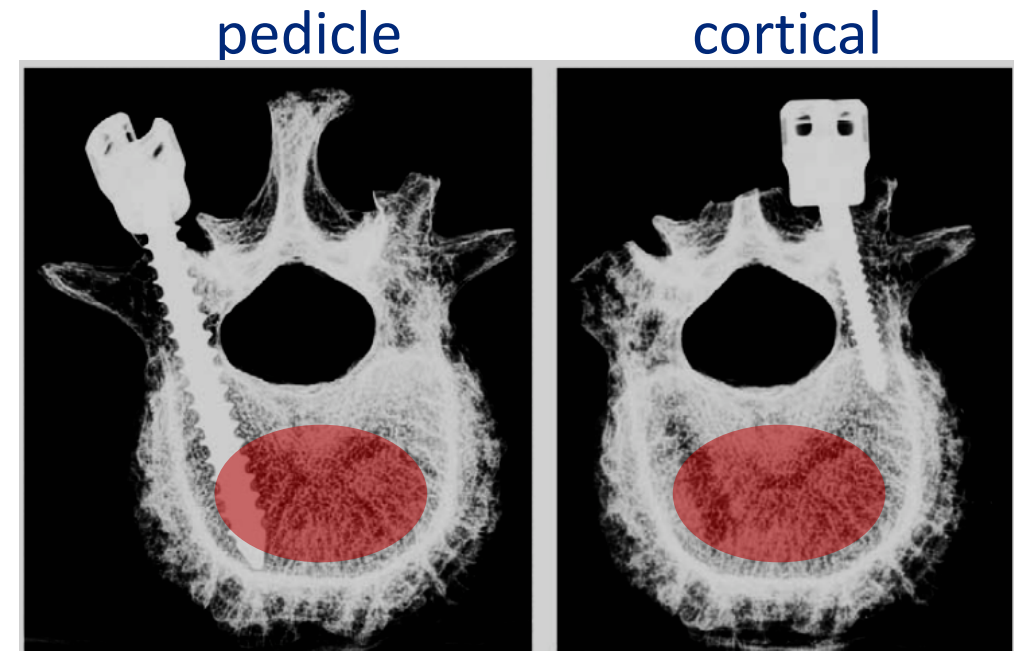
- Dan Refai – Stryker Spine, royalties
- Faiz Ahmad - DePuy-Synthes and Medtronic, consulting

Cortical Trajectory



Chen Cureus 2016

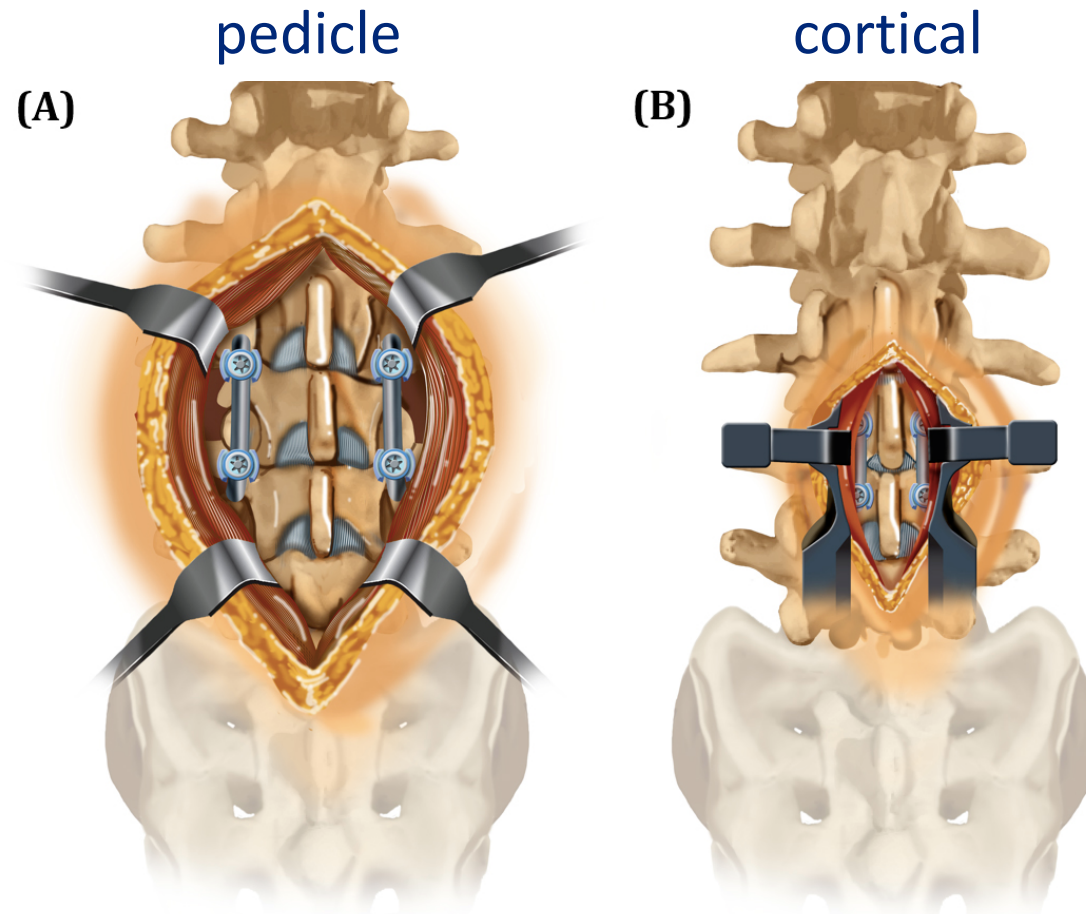
- Alternate to traditional pedicle trajectory
 - Medial-to-lateral
 - More cortical bone purchase
 - Avoids trabecular bone



Santoni Spine Journal 2009

Cortical Trajectory

- Less lateral dissection and retraction



Methods

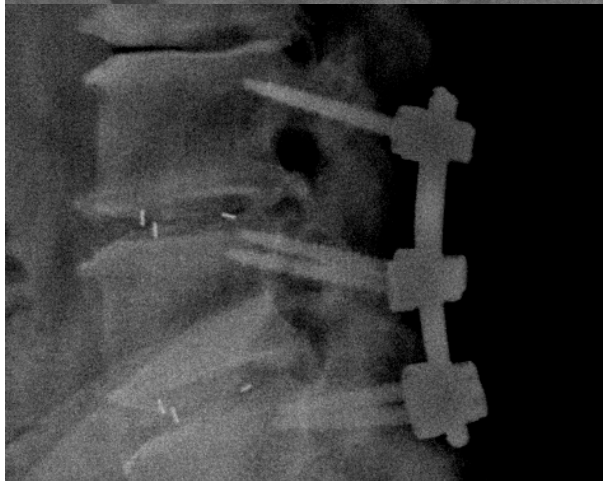
Design

- Retrospective
- Patients of Dan Refai
 - 2010-2017
- Three cohorts:
 - Cortical trajectory TLIFs
 - Pedicle trajectory TLIFs
 - Posterolateral fusion (PLF)

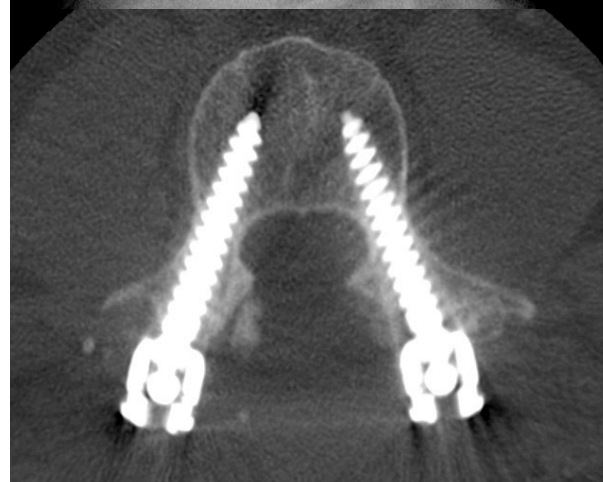
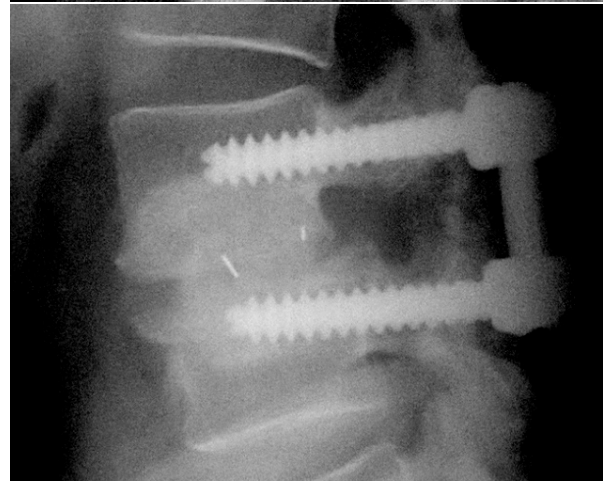
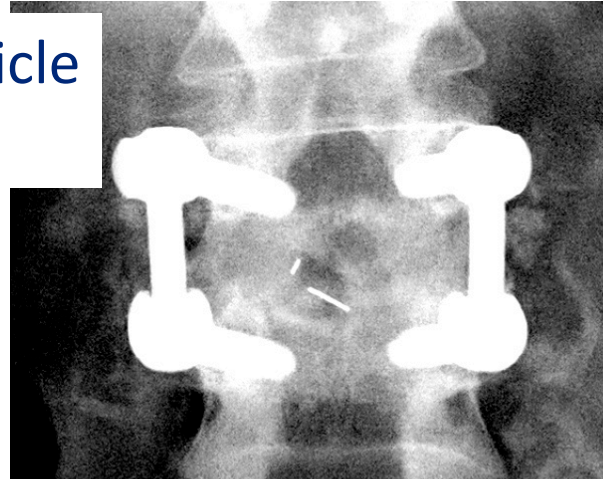
Outcomes

- Perioperative variables
 - Estimated blood loss
 - Transfusions
 - Operative time
 - Length of stay
 - Disposition (home, rehab)
- Complications
 - Perioperative
 - 30-day
 - 90-day

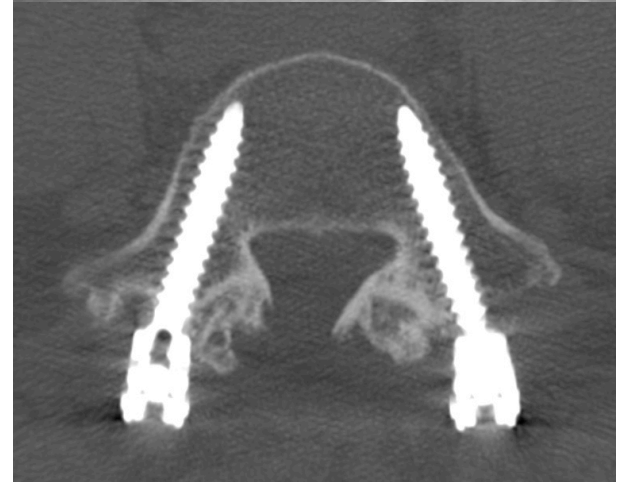
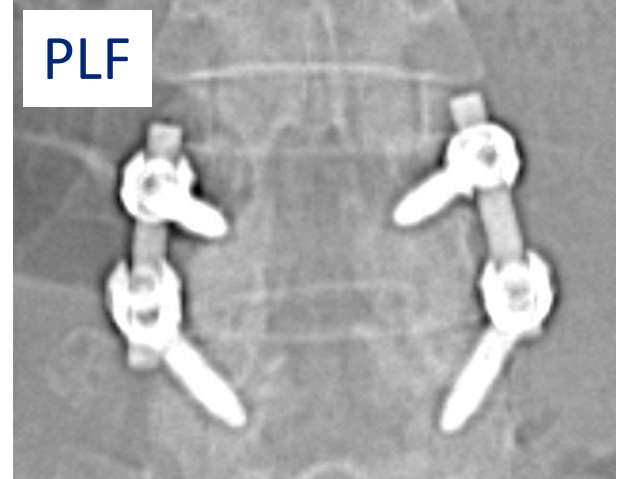
cortical
TLIF



pedicle
TLIF



PLF



Demographics

	Total	Cortical	Pedicle	PLF
Patients	118	45	35	38
Female/Male	74/47	25/20	28/7	18/20
Age (years)	62 ± 10	63 ± 9	57 ± 11	64 ± 10
BMI (kg/m)	28 ± 6	28 ± 5	27 ± 4	29 ± 6
Smokers	16 (14%)	9 (20%)	3 (9%)	4 (11%)
Diabetics	14 (12)	7 (16)	1 (3)	6 (16)
Osteoporosis	12 (10)	5 (11)	3 (9)	4 (11)
Cancer	8 (7)	3 (7)	1 (3)	4 (11)

Perioperative Variables

	Total (n=118)	Cortical (n=45)	Pedicle (n=35)	PLF (n=38)	p-value
EBL (ml)	343 ± 261	231 ± 186	424 ± 315 ^a	400 ± 241 ^b	0.0009
Transfused	22 (19%)	1 (2)	14 (39)	7 (18)	<0.0001
OR time (min)	228 ± 72	214 ± 61	262 ± 71	211 ± 77	0.0026
LOS (days)	5.1 ± 3.2	4.3 ± 1.6	4.8 ± 1.7	6.2 ± 4.9	0.0161
Home / Rehab	94 / 24	49 / 5	28 / 7	26 / 12	>0.05

Significant pairwise differences (Tukey test)

Complications

	Total (n=118)	Cortical (n=45)	Pedicle (n=35)	PLF (n=38)	p-value
Overall	24	8	8	8	>0.05
Perioperative	20	7	7	6	>0.05
Durotomy	14	7	4	3	>0.05
Within 30 days	3	1	1	1	>0.05
Within 90 days	1	0	0	1	>0.05
Wound healing	4	1	1	2	>0.05

No differences in complication rates

Discussion

- Only one clinical study has comparing to pedicle (Lee 2015)
 - Similar fusion, reduced OR time & EBL
 - Our findings confirm this
- Blood loss & transfusions are related
 - Reduced cost, fewer complications
- OR time
 - Cortical was not slowed down by intraop imaging
 - Significant time spent dissecting for pedicle & PLF
 - Disc space prep for both TLIF groups
- Length of stay
 - Pain from larger dissections
- Limitations
 - Spanned 2010-2017
 - Surgeon experience



Conclusions

- Cortical screws require less dissection
 - EBL & transfusions reduced
 - OR time less than pedicle due to less dissection despite disc prep
 - LOS & rehab less likely due to reduced pain & muscle disruption
- Next steps
 - Compare fusion, subsidence, & correction at one year
 - Control for surgeon experience (time)