

# Minimally Invasive Spine Surgery



Monadnock  
Orthopaedic  
Associates

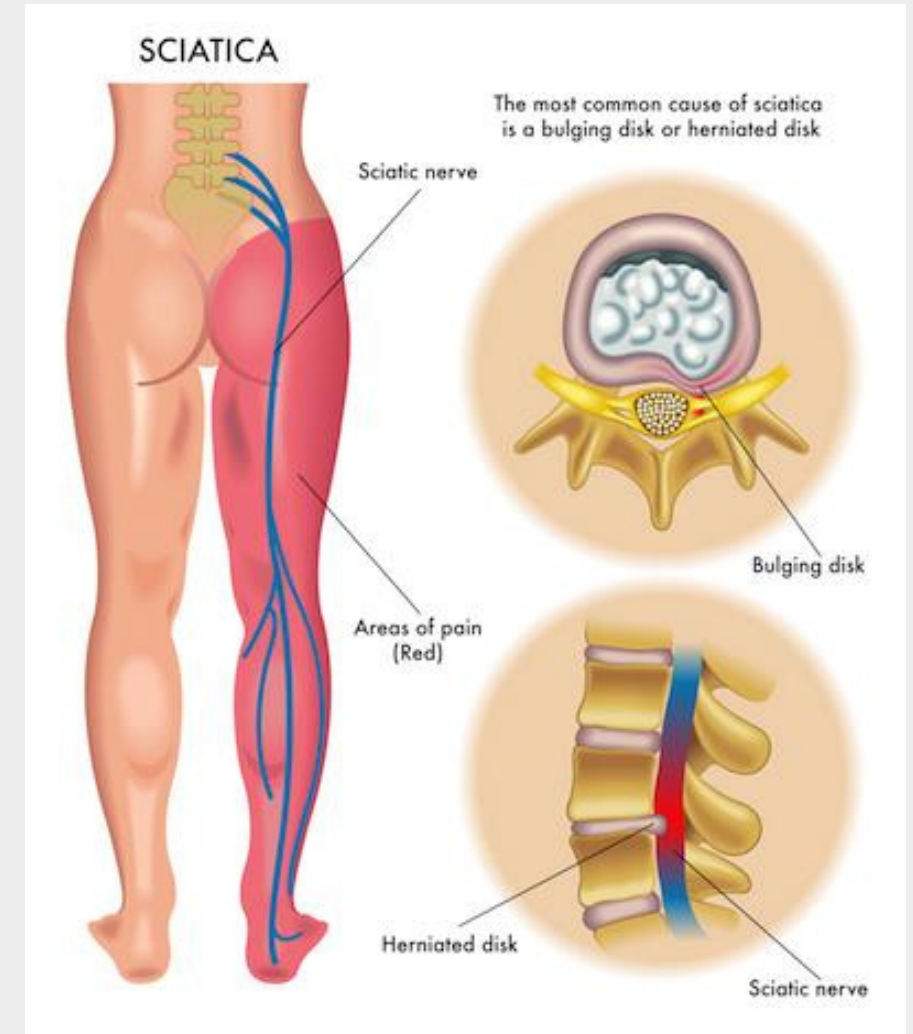
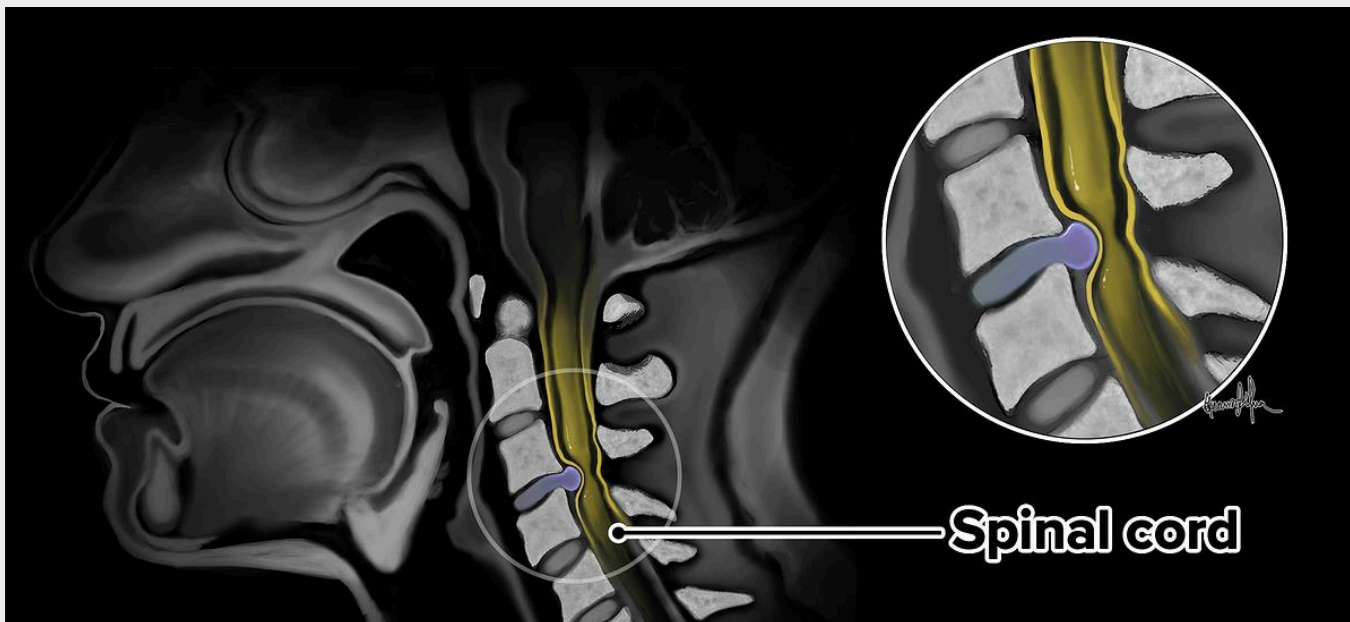
Vache Hambardzumyan MD, PhD, FEBS (Tr.)

*Monadnock Orthopedic Associates*

*January 9th, 2025*

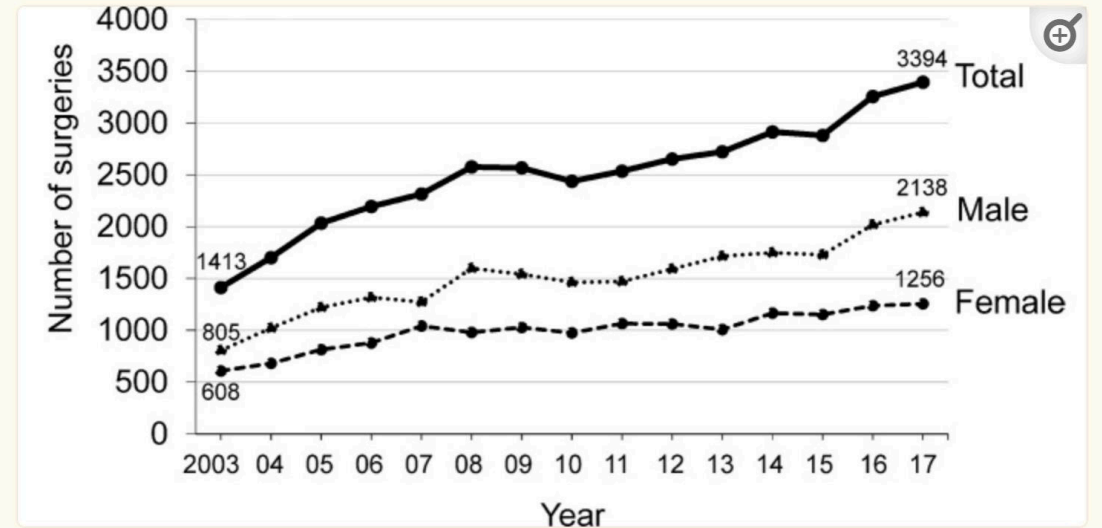
# Spine service

- First case in March 2023
- Started regular schedule May 2023



# Statistics and Trends

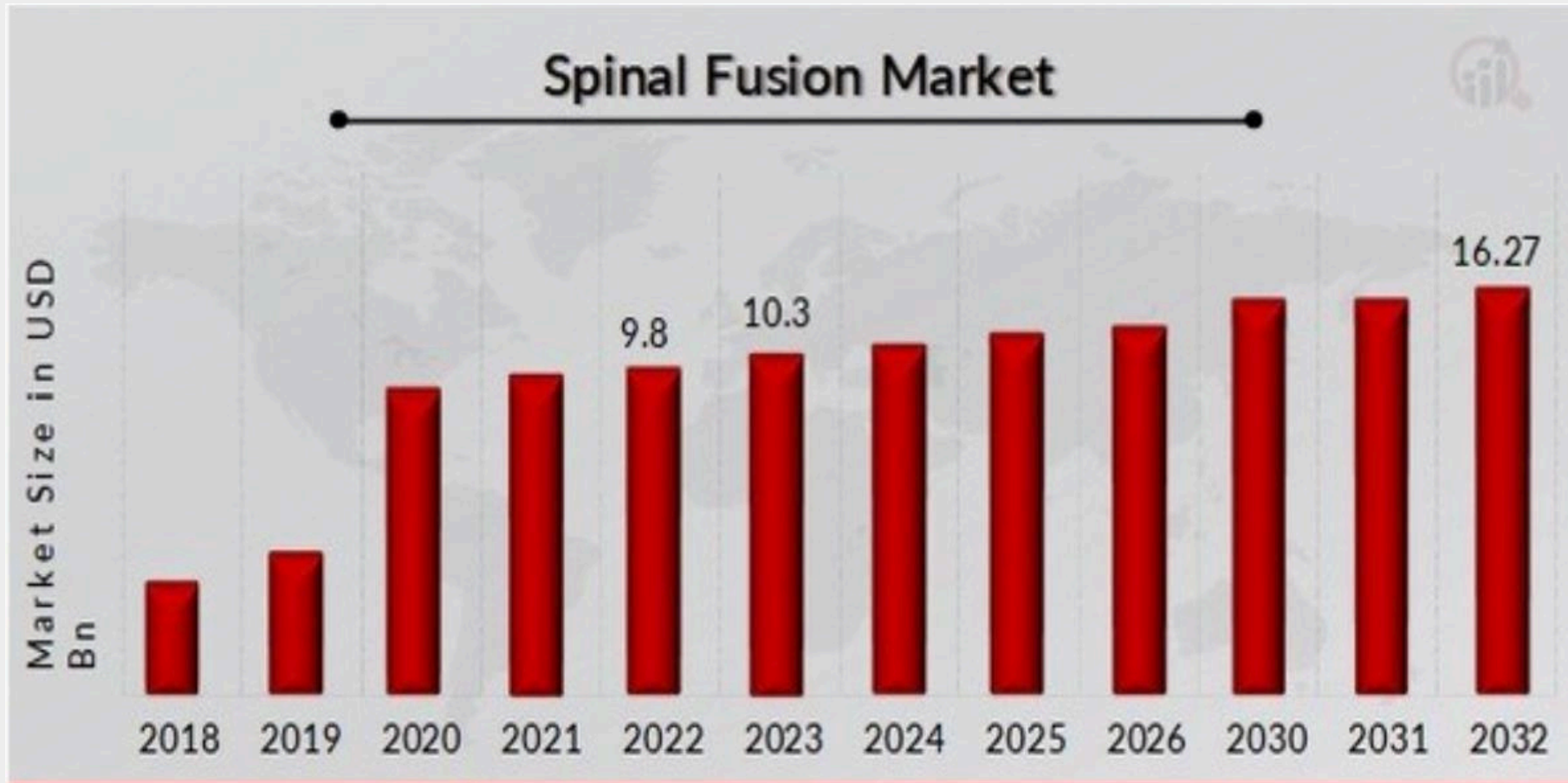
- 80% -100% of the population struggles from back pain at some point
- 6-7 million in the US disabled due to Spinal conditions
- The number of lumbar surgeries increased over 113%, compared with 15% for Hip and Knee replacement



[Fig.1](#)

Annual numbers of spine surgeries

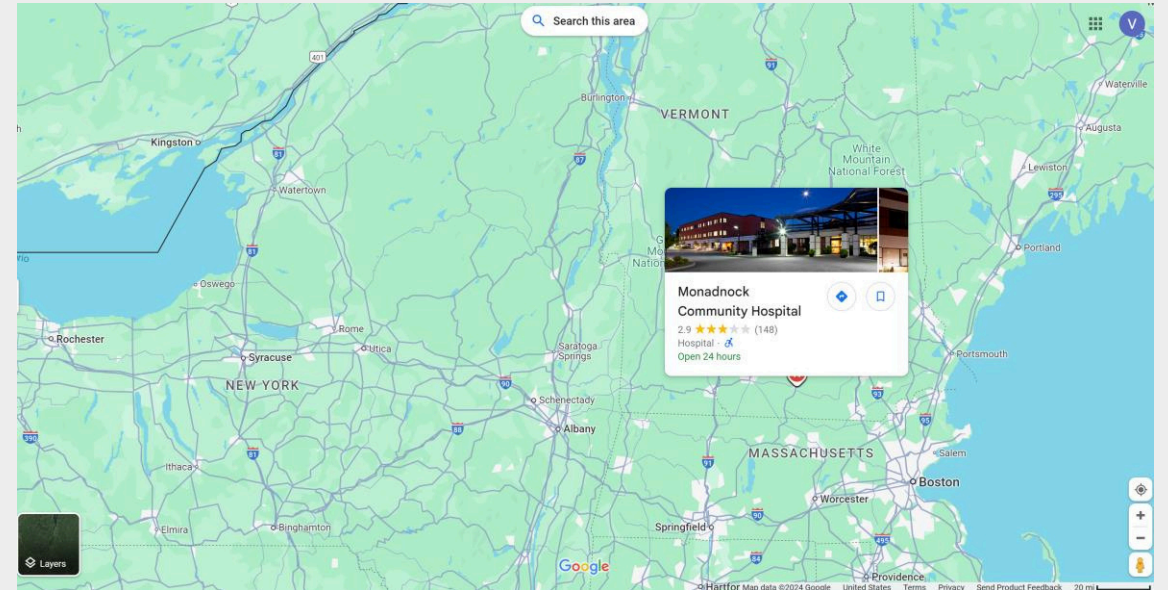
- Spinal Fusion Market was valued at USD 10.3 Billion in 2023.
- Projected 16.27 Billion by 2032





# Current trends in spine surgery

- Minimally invasive techniques
- Outpatient surgery
- Motion preserving techniques
- Enhanced recovery
- Robotic and Navigation systems
- Regenerative biologics and tissue engineering



- Rates of lumbar surgeries rose dramatically for patients aged 60 and above.
- Increase 230% over the decade





# Patients over 65

- Significant increase in the health burden.
- Often have a number of medical comorbidities.
- The need for **minimally invasive techniques** for elderly population cannot be stressed enough.

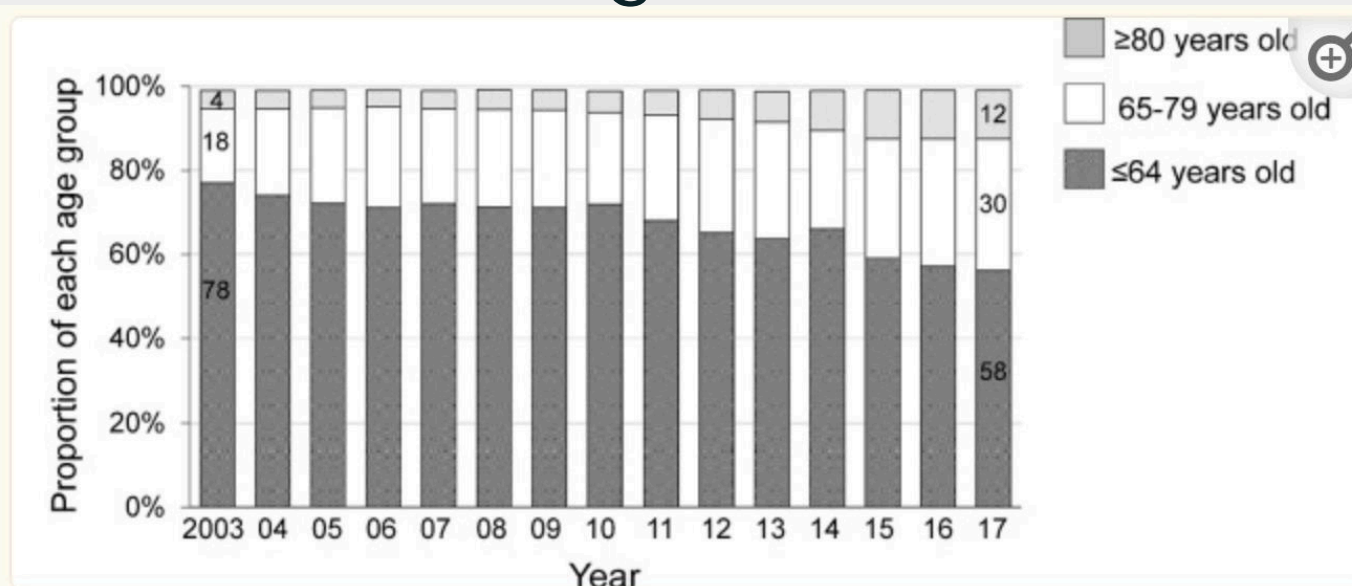
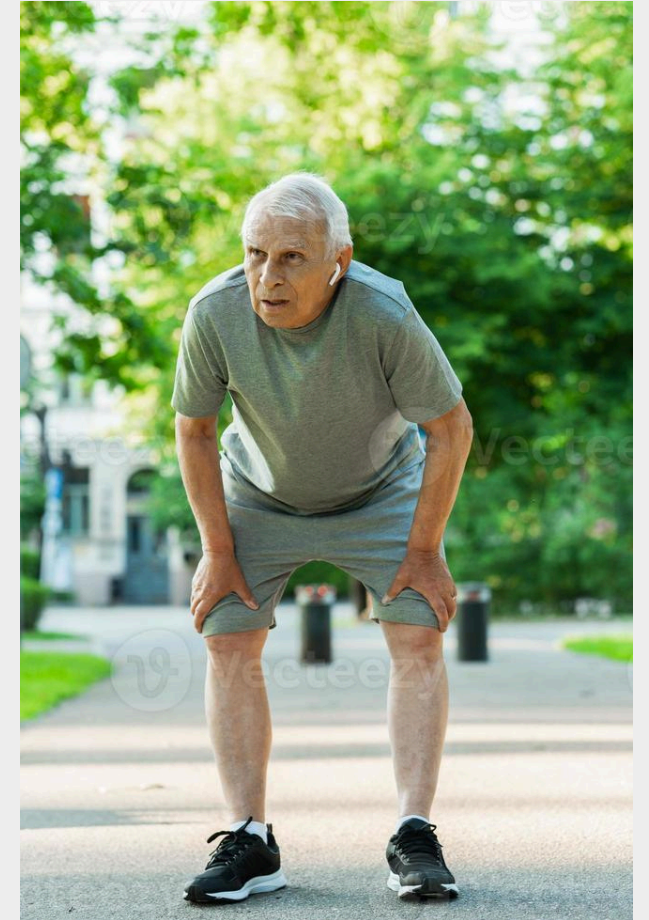


Fig. 2

Proportions of elderly people in total spinal surgery cases



# MCH performed procedures – over 100

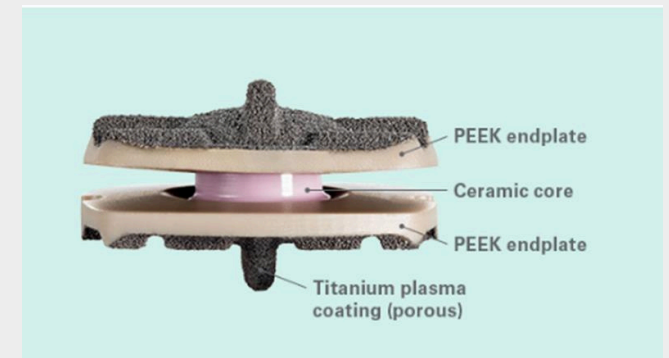
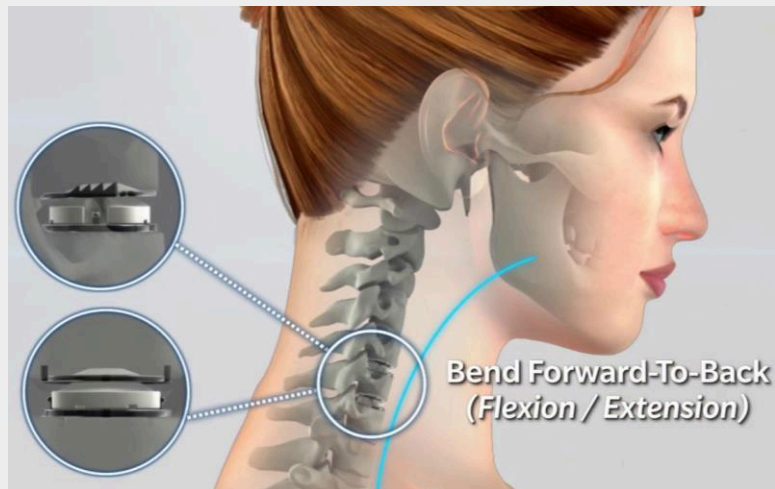
- Cervical Spine Disc replacement/ Cervical fusions
    - ACDF Minimally invasive discectomy tubular/endoscopy 35cases (37.3%)
  - Minimally invasive fusions
  - Multilevel Fusions
  - Open Laminectomy
  - Kyphoplasty
- 
- *Most of the patients got discharged either on the same day or after one night stay*
  - *No major complications*



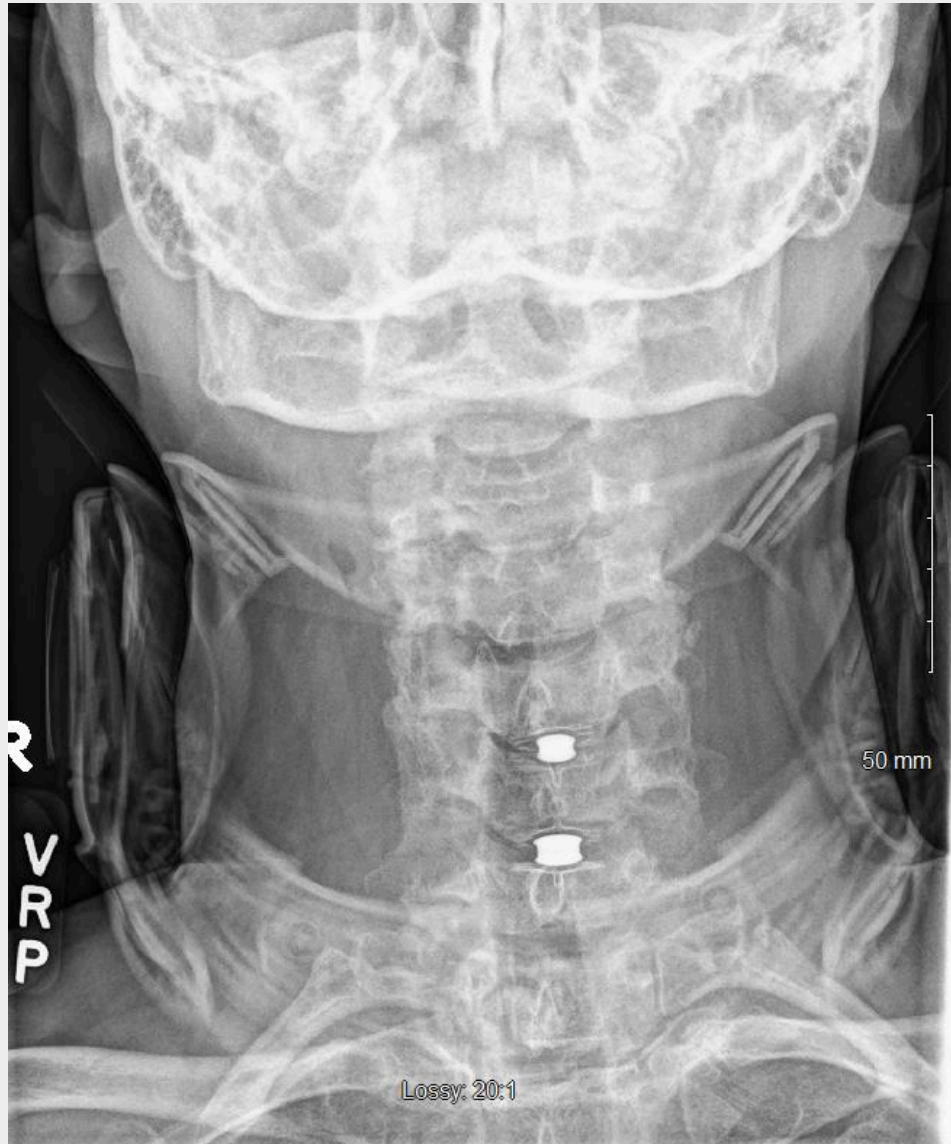
# Cervical Disc Replacement

## Cervical Fusion (ACDF) vs Cervical Disc Replacement (CDR)

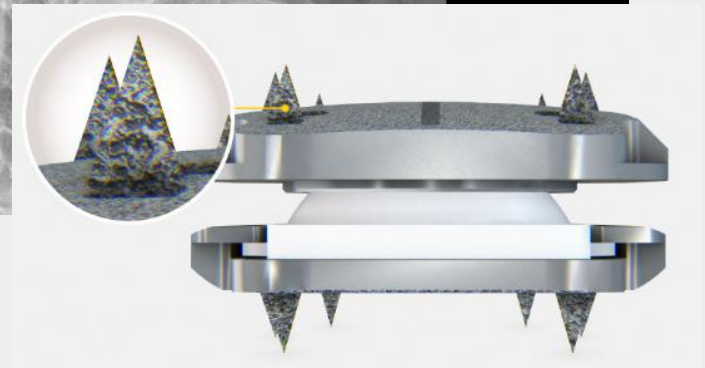
- Lower reoperation rates
- Lower neck pain intensity and frequency
- Positive effect on adjacent level disease
- No difference in arm pain and neurologic improvement



# 34 y.o. woman with cervical radiculopathy

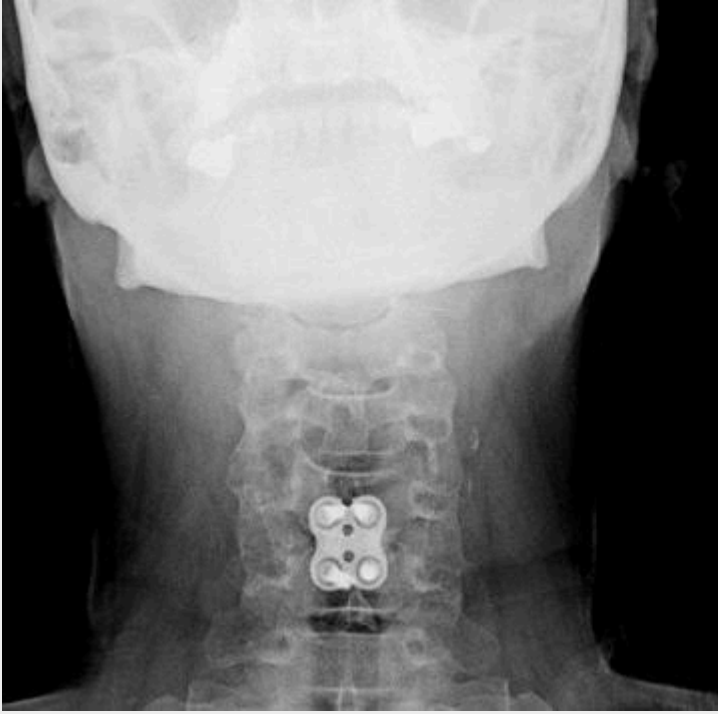
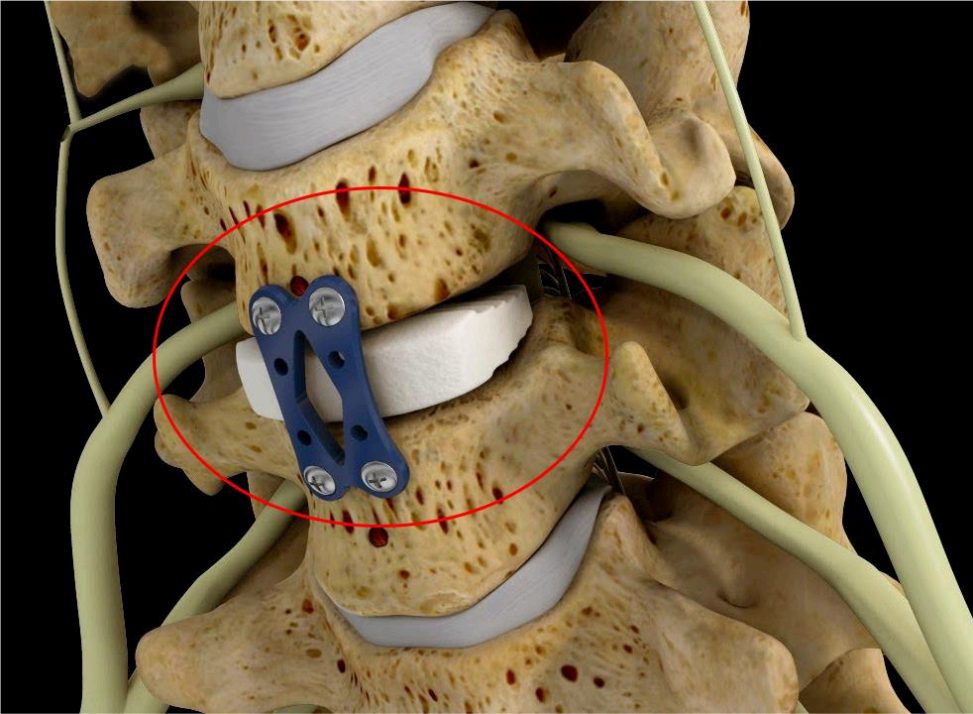


# MCH cases - 28 y.o. man with cervical radiculopathy





# ACDF – Anterior Cervical Decompression & Fusion

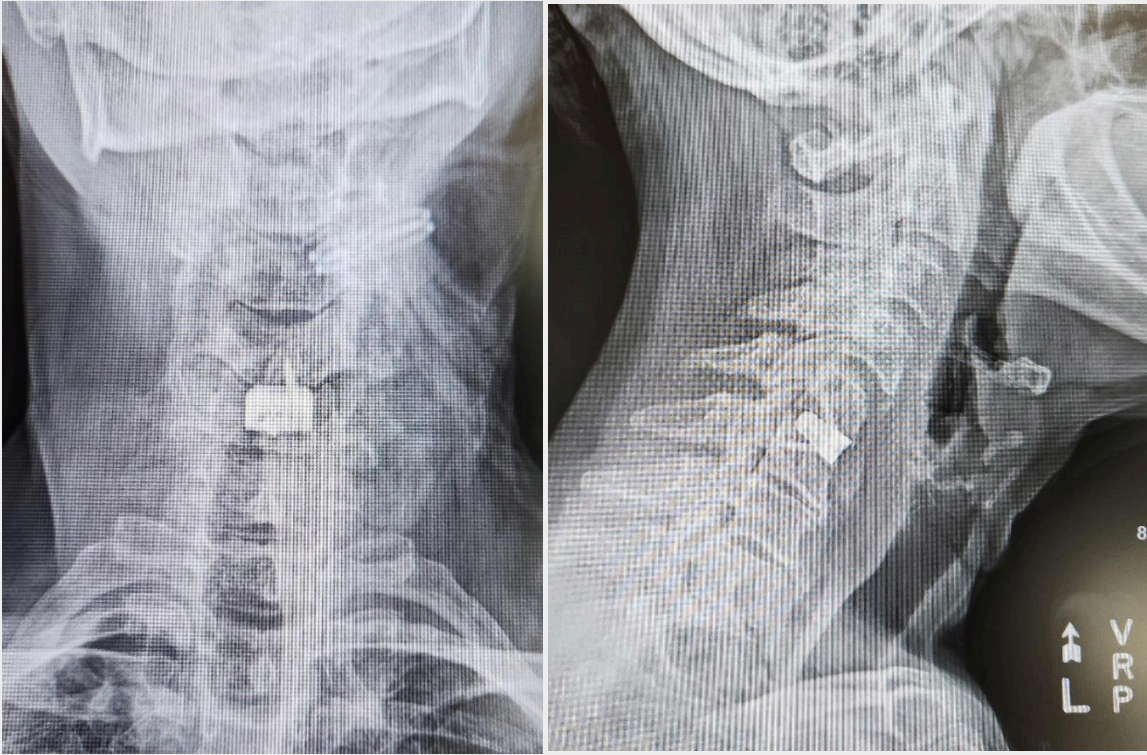
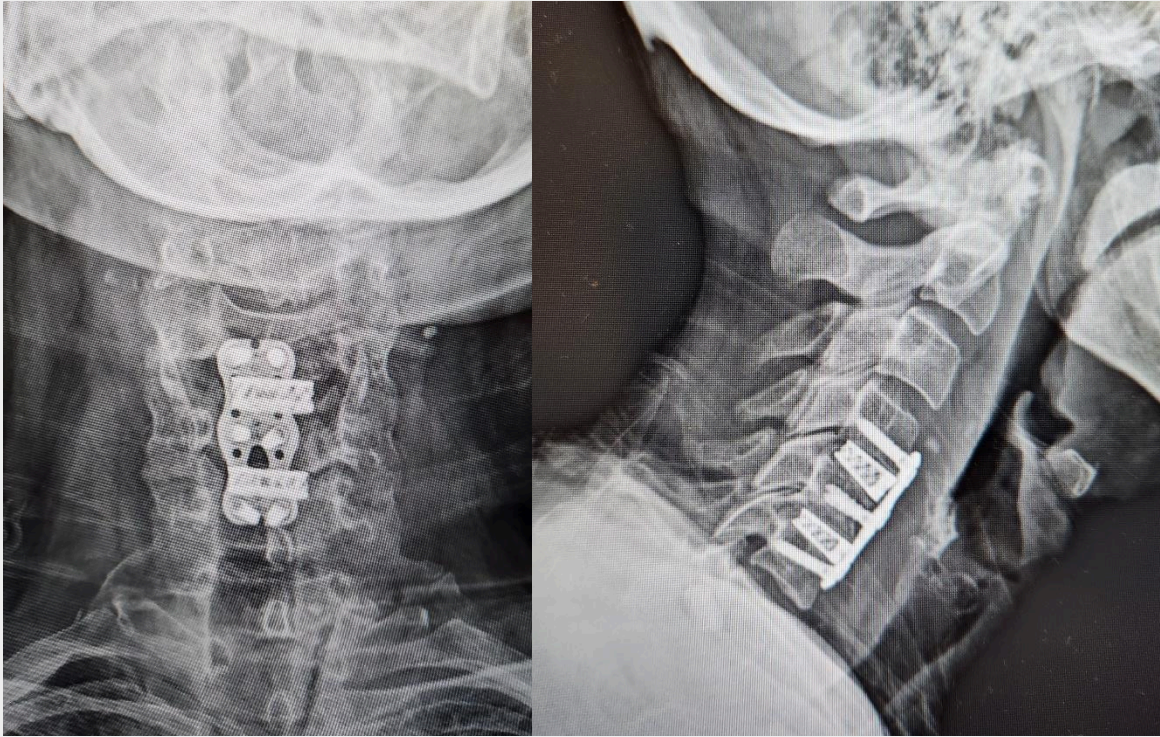




# ACDF – Anterior Cervical Decompression & Fusion

57 y.o. man with cervical myelo-radiculopathy

64 y.o. woman with cervical myelopathy



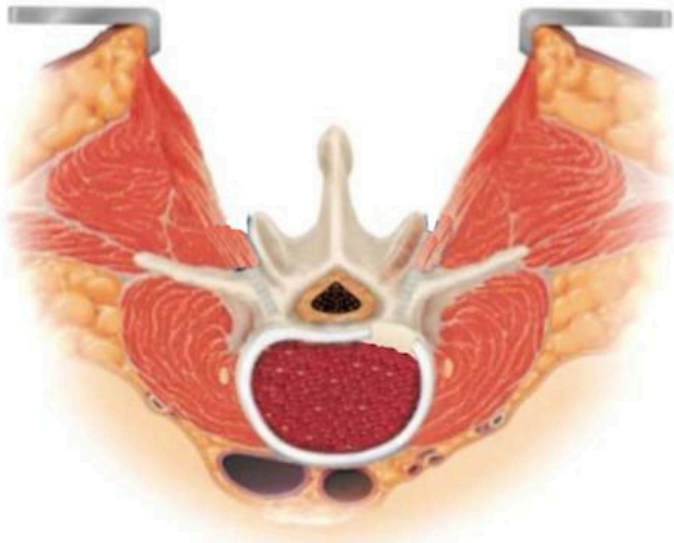


# Minimally Invasive Surgery

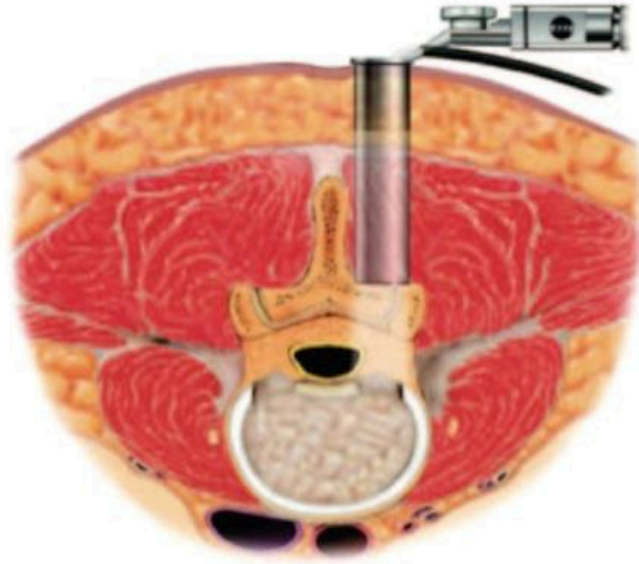
- Less trauma
- Smaller incision
- Prompt recovery

Which Would You Prefer?

Open



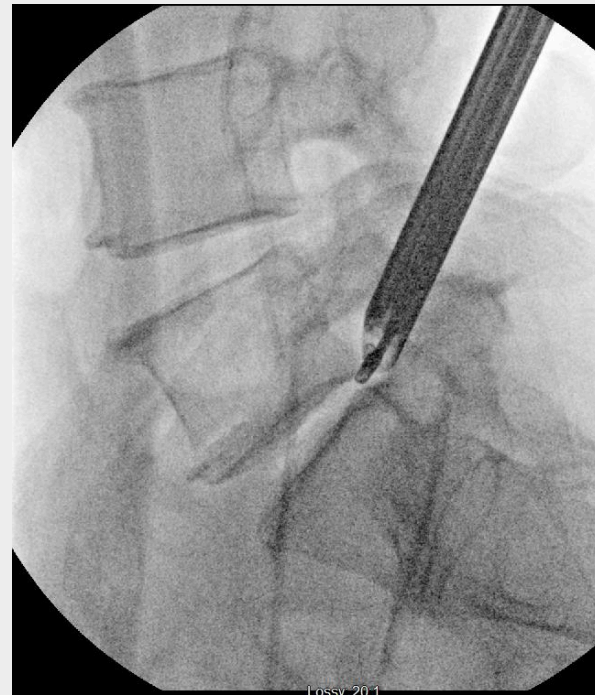
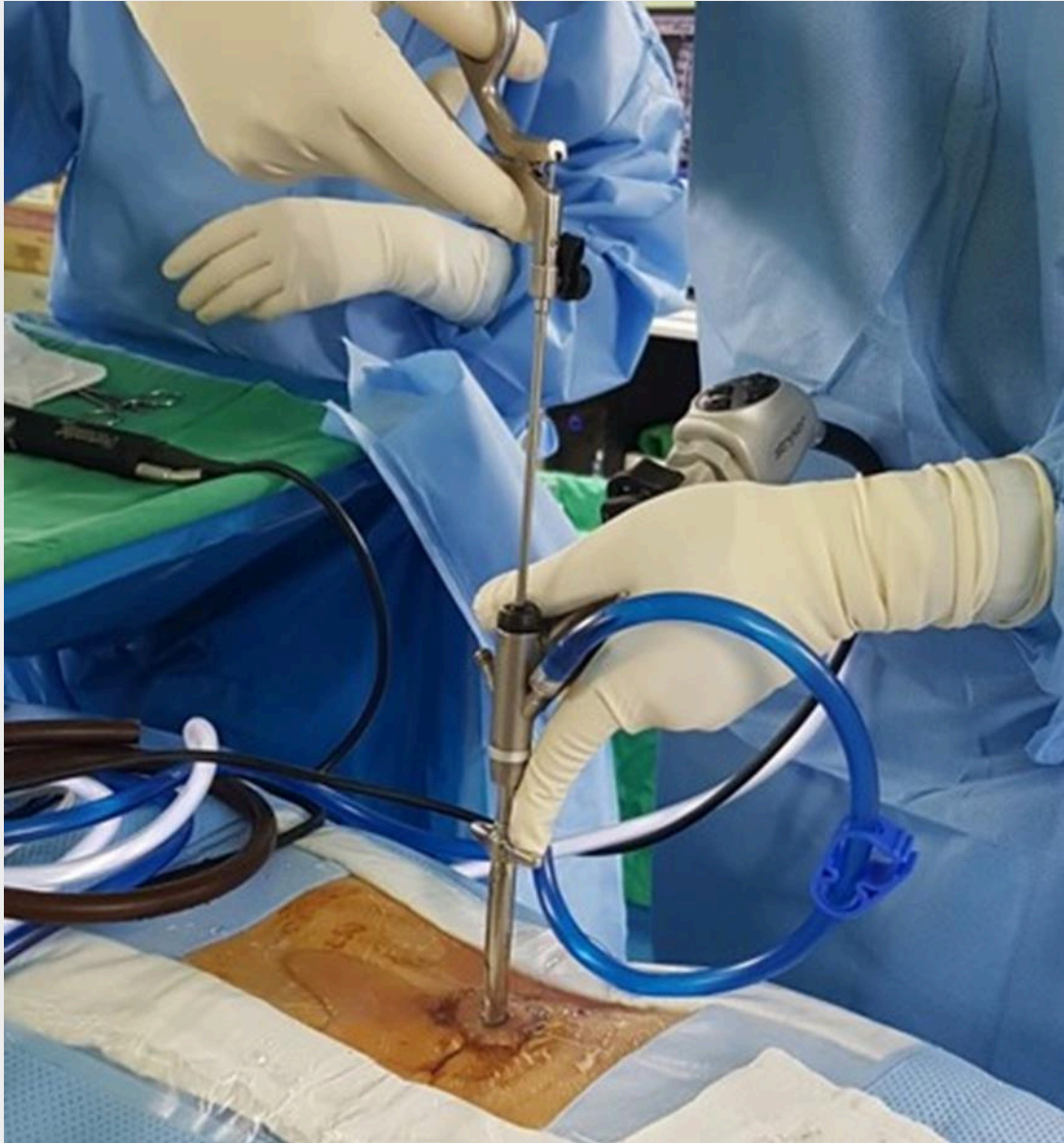
Tubular MIS



Tubular approach



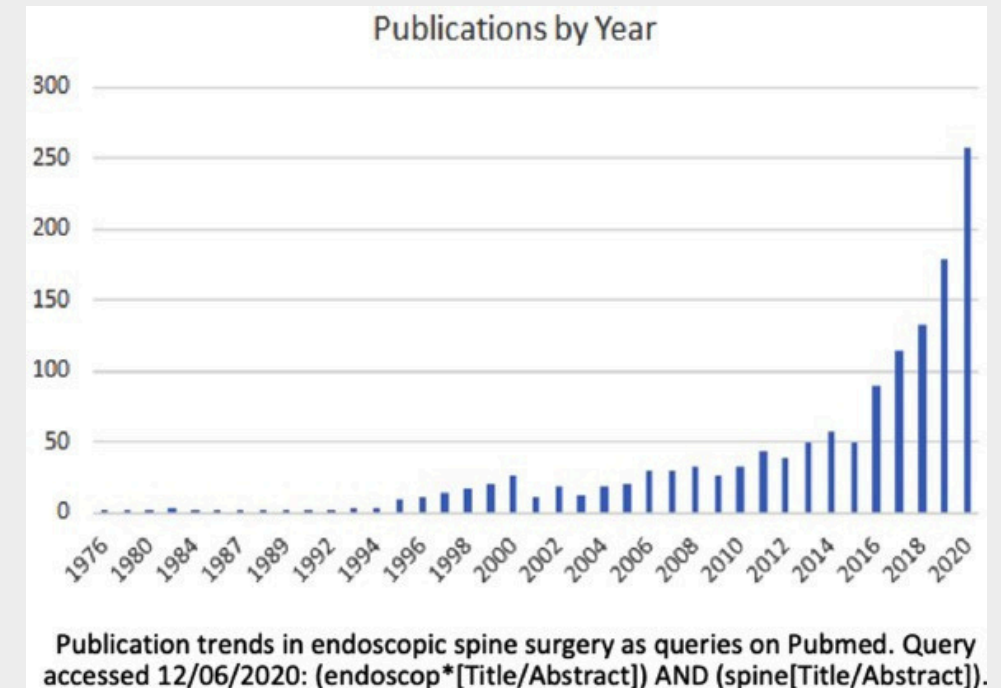
# Endoscopy





# Spine Endoscopy

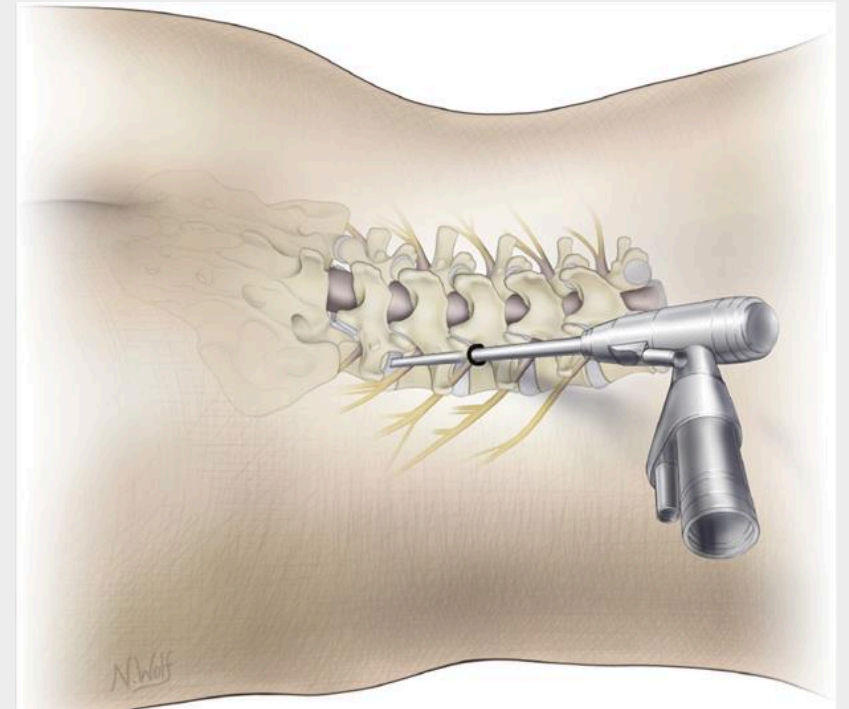
- *16x decreased infection risk*
- *Significantly decreased pain*
- *Quicker return to work*
- *Negate the effect of obesity*
- *Alternative to larger fusion procedures*



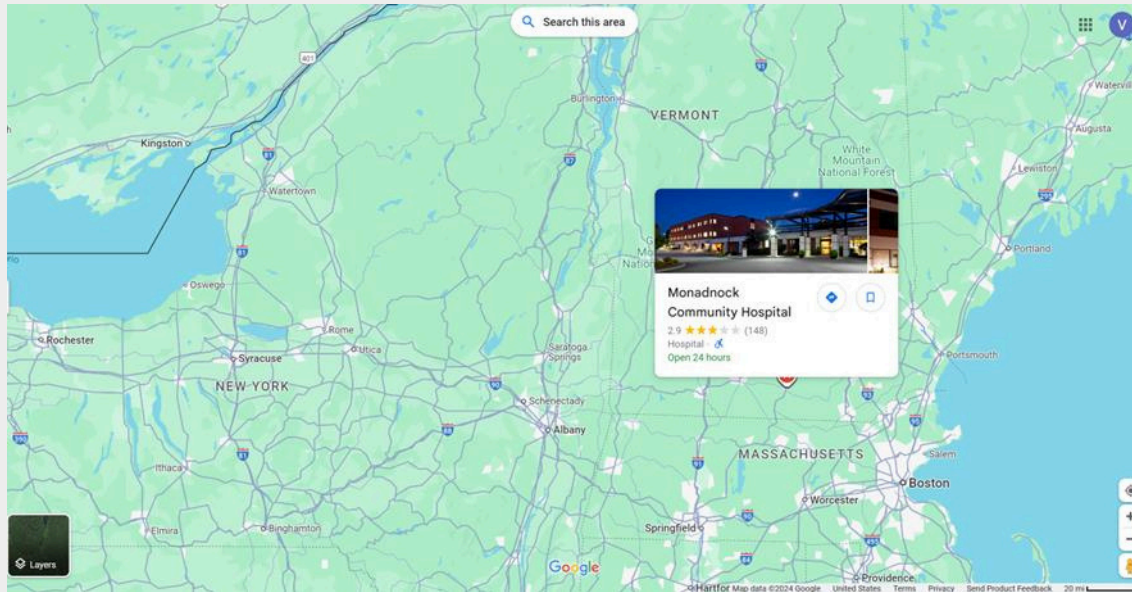


# Endoscopic vs Open discectomy

- Decrease in hospital stay from 3.8 days to 0.9 days
- Decrease in operative time from 73.8 min to 45.8 min
- Decrease in opiate consumption



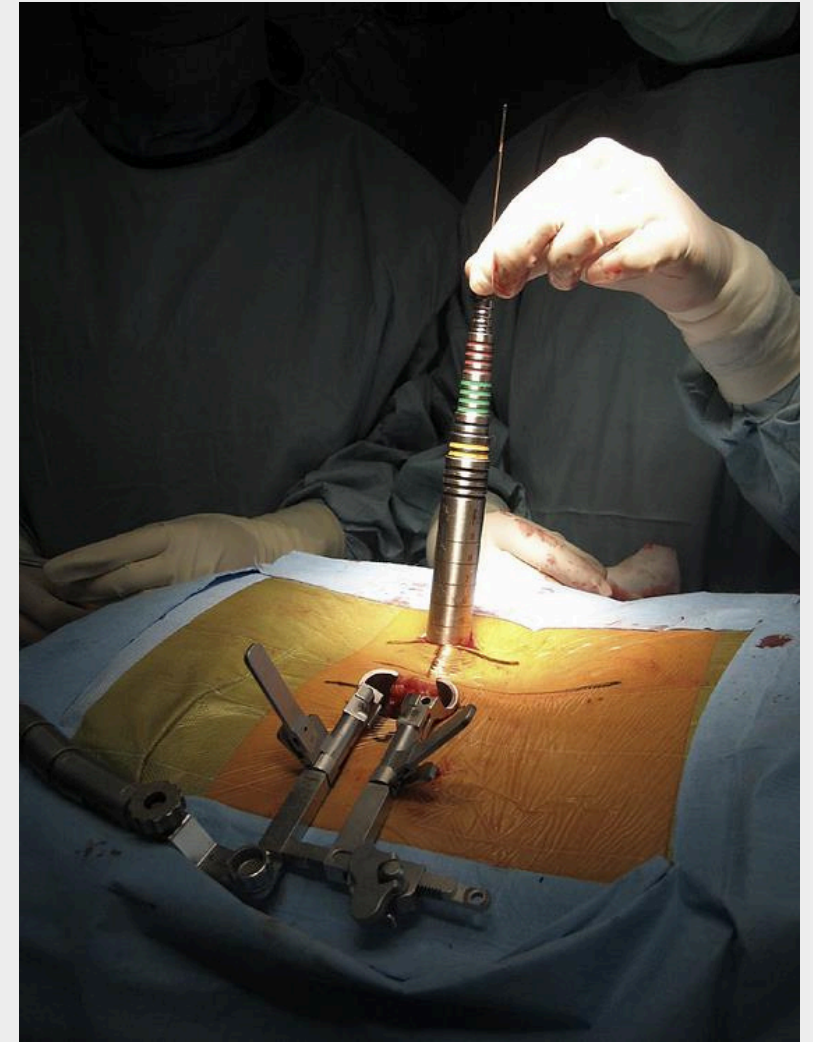
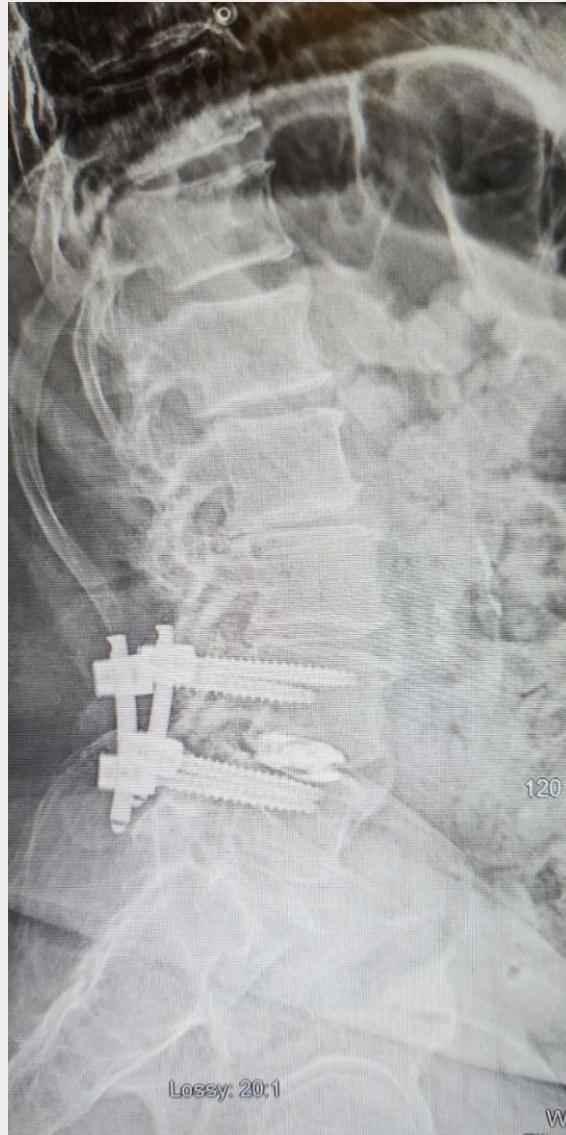
# Seattle Science Foundation Spine Endoscopy 2nd Symposium.



- ~3% of spine surgeons do endoscopy on regular basis
- ~5000 Spine Surgeons in the US
- ~150-200 hospitals in the US have Spine Endoscopy Service
- ~7-8 in New England



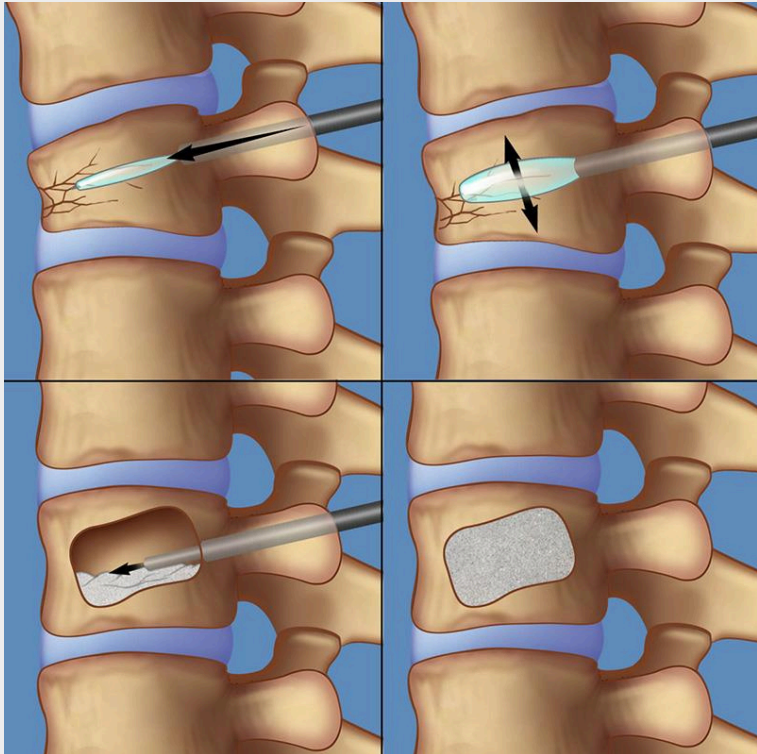
# MCH - Minimally invasive fusion





# Kyphoplasty

- Vertebral Osteoporotic fractures
- Very common in elderly
- Same day procedure
- Immediate pain relief





# After 18 months

- 92 Spine Surgeries
- Complication rate **3 times less** than national average (16.4% vs 5.8%)
- Several procedures performed for the first time in the region





# Questions?

**M**onadnock  
Orthopaedic  
Associates

[MonadnockOrtho.org](http://MonadnockOrtho.org)

603-924-2144



**Monadnock**  
COMMUNITY HOSPITAL

Your life. Your health. *Your Hospital.*

