

ContraTech MIS-TLIF Discectomy Tool

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Background

Our project aims to redefine how you realign your spine. Traditional Transforaminal Lumbar Interbody Fusion (TLIF) procedures involve long surgeries and recovery times of up to 6 weeks. In the minimally invasive form (MIS-TLIF) of this surgery, patients can go home the same day!



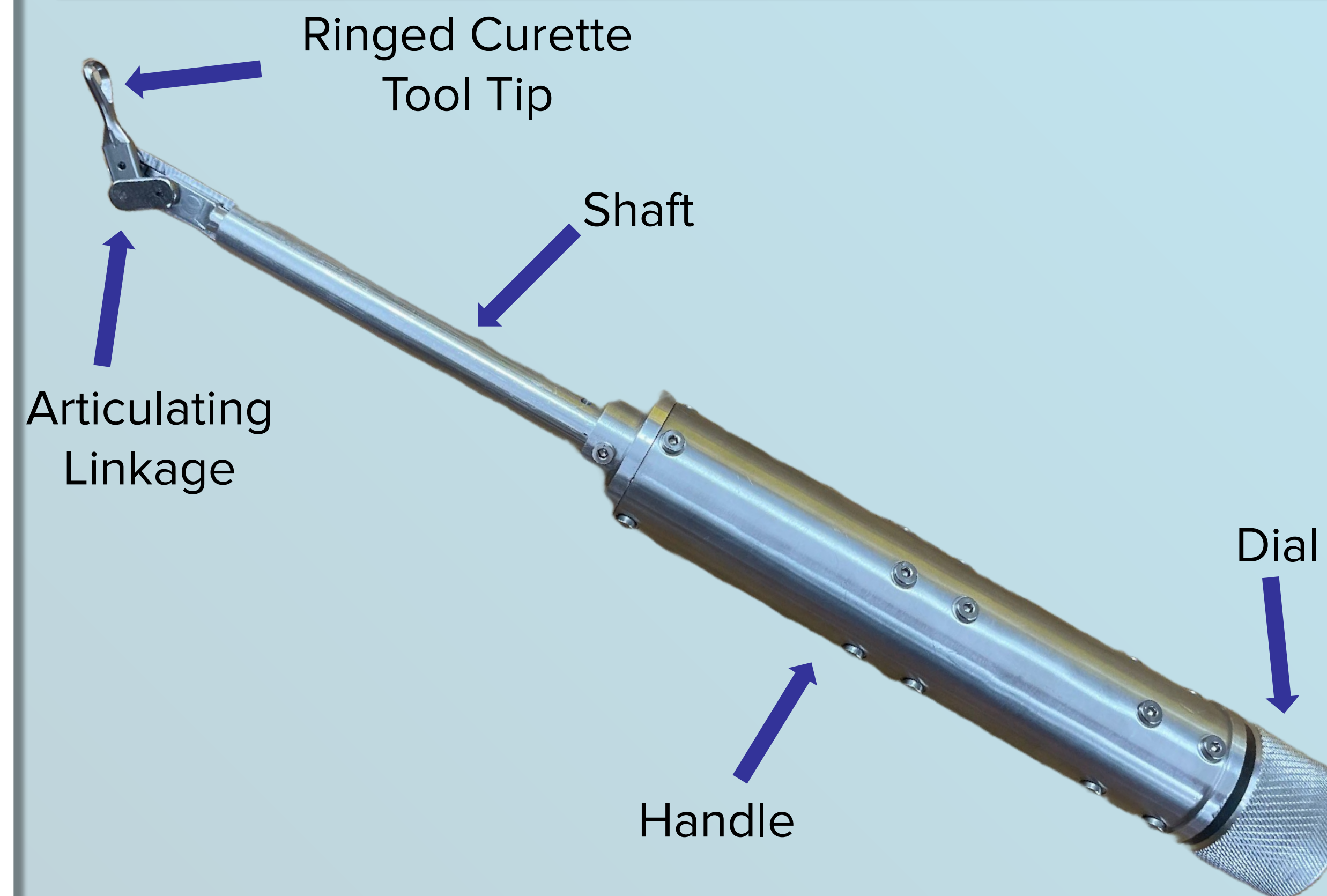
However, current tools are unable to reach and clear the far side of the disc, leading to increased surgical times and risk.

To address this problem, our tool is designed to articulate and completely clear disc material, allowing for faster, more thorough procedures and quicker recoveries!

Device Specs

Needs	Engineering Characteristics	Spec
Reach Contralateral Space	Angle of Mobility	Pass
Scooping Force	Force	40 N
Fit Inside Retractor	Diameter	9.5 mm
Autoclavable	Temperature and Pressure	121°C and associated pressure

ContraTech Final Design



Key Components

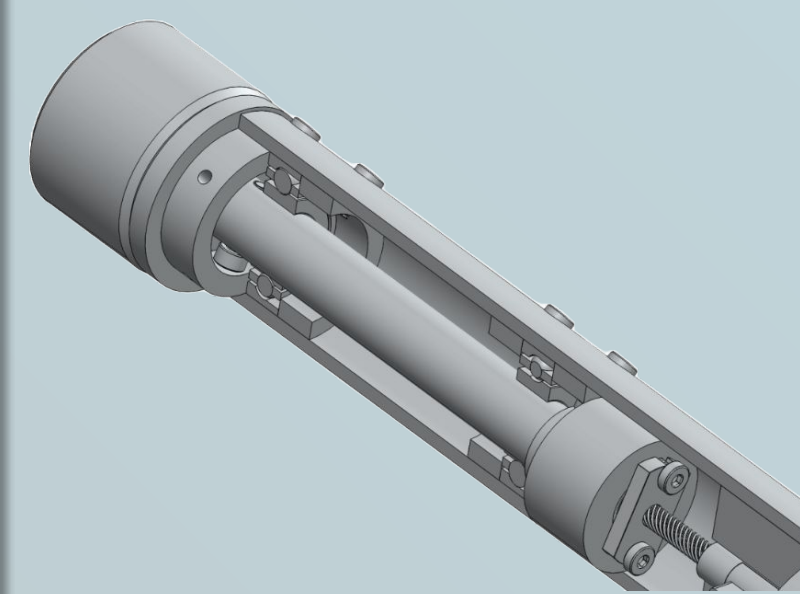
Articulating Linkage

Steel linkage that can reach and disturb material in difficult areas working within tight anatomical boundaries to clear disc



User-Friendly Controls

Knurled dial and aluminum handle incorporating lead screws and bearings to control articulation in a surgeon-friendly manner



Shaft

Narrow shaft diameter that can fit within 10mm tubular retractors for very small spine incisions

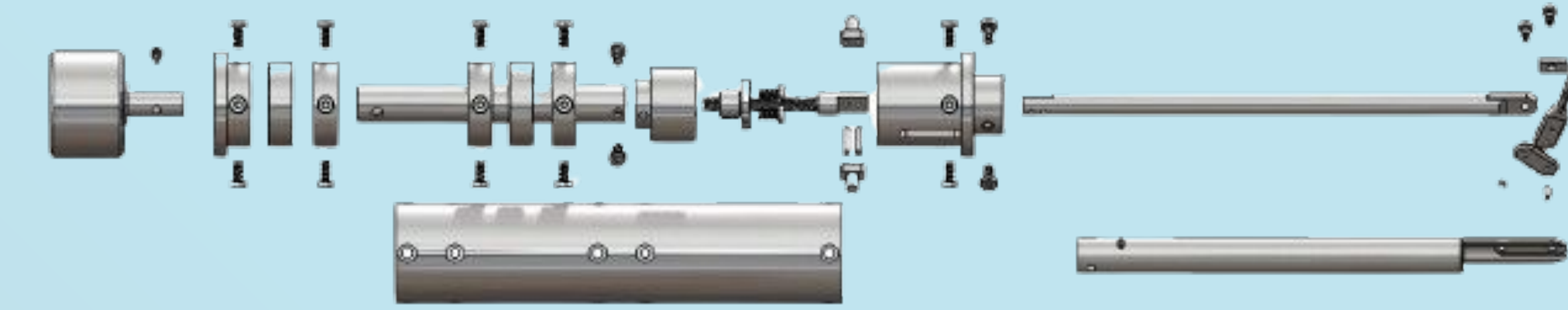


Ringed Curette Tool Tip

Ringed curettes are preferred by surgeons to efficiently disrupt and remove material



Exploded View



Volumetric Scooping Test

Current Tool

ContraTech



Green box outlines boundaries of disturbed material

- ContraTech disturbed over twice as much material as current SeaSpine curette!
- ContraTech reached far edges and corners to completely clear space, which existing curette could not do



ContraTech

Current Tool

Conclusions

In conclusion, the ContraTech device brings forward a revolutionary change in the orthopedic spinal surgery world. The time and energy saved by using the ContraTech allows for surgeons to work smarter, not harder, to save time on your spine. It also means patients can recover faster with fewer complications and go home to their families sooner!

Acknowledgements:

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