

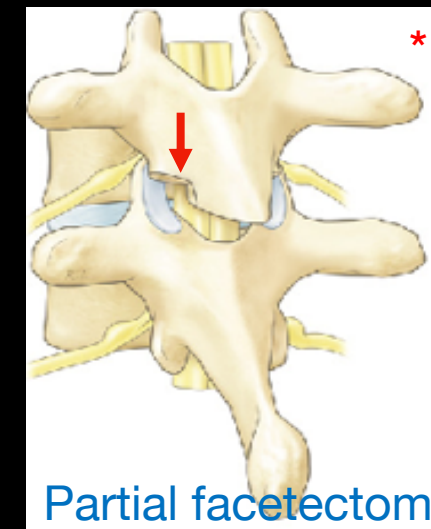


Effectiveness of the Ultrasonic Bone scalpel Ponte Osteotomy (UBSPO) in posterior correction of Lenke Type 1 Adolescent Idiopathic Scoliosis (AIS)

Akshay Gadiya, Siddharth Shah, Ali Shetaiwi, Shakil Patel, Masood Shafafy

Centre for Spinal Studies and Surgery, Queen's Medical Centre, Nottingham University Hospitals NHS Trust, United Kingdom

- Partial facetectomies with pedicle screw instrumentation is widespread and a well described technique for achieving posterior correction of scoliosis.
- Use of ultrasonic bone scalpel for posterior column release was described by Newton et. al in 2014
- Aim of this study was to assess the effectiveness of USBPO in achieving posterior correction in Type 1 AIS as compared to partial facetectomies.



Methods

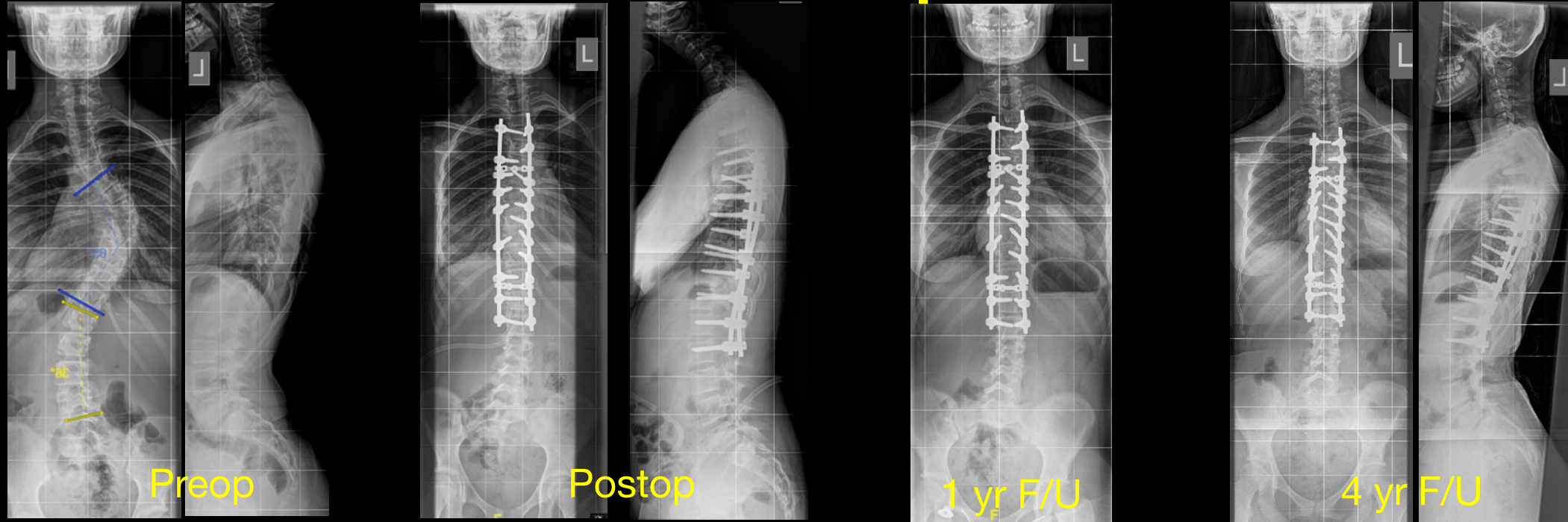
- A retrospective review of 40 patients with type 1 AIS who had undergone a posterior correction of scoliosis between 2010 and 2016 was performed.
- Group A (n=20) : consecutive patients that had partial facetectomies
- Group B (n=20) consisted of consecutive patients having UBSPO.
- Pre and post-operative radiographic parameters and operative data in both groups were compared.
- The Mann-Whitney U test was used for statistical analysis.
- Both groups were matched for demographic parameters. All patients had a minimum of 2 years of follow up.



Results

- No significant difference between the two groups in terms of age, sex, magnitude of curves, apical rotation and flexibility on the preop imaging.
- There was a significant difference between the mean postop Cobb angle (21.9° vs 9.8° , $p < 0.0005$), correction (63.04% vs 84.3%, $p < 0.0005$) and postop apical rotation ($p = 0.008$) in favour of the UBSPO group.
- At 2-year follow-up there was a statistically significant increase in the Cobb angle in the facetectomy group (21.89° (immediate post op) Vs 24.64° $P = 0.033$) and no such difference in the UBSPO group.
- There was no significant difference between surgical time ($p = 0.536$) and blood loss ($p = 0.380$).

Case example



12 Y/F with left sided type 1A AIS, underwent T3-L2 posterior correction with USBPO. Good correction achieved. Maintained sagittal and coronal balance on 1 year and 4 year follow up.

Conclusion

The use of the USBPO for posterior release provides more effective correction in the coronal and axial planes than traditional partial facetectomies in type 1 AIS.