

Screw Web PACS! - Is pedicle sizing accurate and reproducible on CT?



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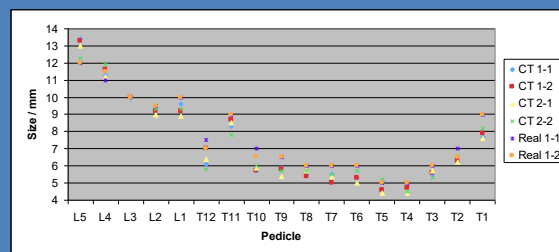
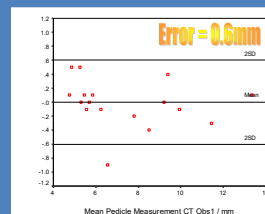
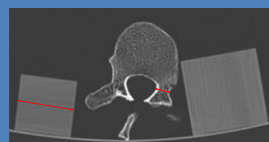
Aims / Introduction

- CT / MRI may be useful for planning pedicle screws
- Previous studies have validated the WebPACS angle tool ¹
- How do we know that the Web PACS ruler tool is accurate and reproducible?

Materials and Methods

- Multislice spiral CT with 1mm cuts performed on cadaveric human spine and 6 geometric shapes
- 2 observers measured each object and each pedicle
- 3rd observer measured objects and pedicles with vernier calipers
- Repeated 2 weeks later

Results



Objects – Intra- and Interobserver Error			
Observer	1	2	3
1	0.6mm		
2	0.6mm	0.6mm	
3			0mm

Pedicles – Intra- and Interobserver Error			
Observer	1	2	3
1	0.5mm		
2	0.8mm	1.0mm	
3			0.4mm

1. Example of object and pedicle measurement
2. Example of Bland and Altman plot - the pedicle measurement performed by observer 1
3. Graph showing the distribution of all pedicle measurements
4. Tables showing the intra- and interobserver error measurements (objects and pedicles)

Conclusions

- Web PACS ruler tool on CT is accurate to 0.6mm of the true size of an object
- The error for pedicle measurements is 0.6 to 1mm
- Measuring pedicle size on CT may have implications for small pedicles when sizing them up for a good screw

References

1. Crawford MB, Toms AP, Shepstone L. Defining normal vertebral angulation at the thoracolumbar junction AJR 2009; 193:W33-W37

Poster No. 000