

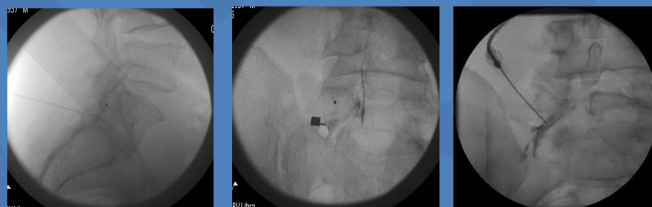
Rootogram To Success?

S.Gudipati, K.Lingutla and M.J.H.McCarthy



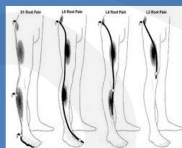
Truths

- We don't always get a good rootogram / good images despite adequate needle positioning / best efforts
- Some people don't even use contrast...



Aim

- Determine whether confirmatory rootogram is associated with a "good outcome"

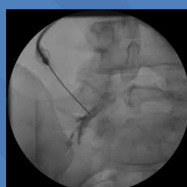


Materials and Methods

- Prospective observational cohort
- Consecutive patients
- Single surgeon
- 2-year period regional tertiary spinal unit (NHS)

Radiological

- Independent analysis:
 - position of the needle
 - rootogram present
 - medial dye spill around pedicle



Outcome Measures

- Patient reported pain relief from injection
 - Did it work?
- Operation subsequently performed
- Pre-operative and post-operative (3/12)
 - Visual analogue score back and leg pain
 - Oswestry disability index

Results

- Sept 2012 to Sept 2014
- 106 patients
- Males = Female
- Mean age 53.3yrs

Results

- Main pathology:
 - Disc Prolapse 52/106
 - Lateral recess stenosis 45/106
 - Foraminal stenosis 23/106
 - Spondylolisthesis 18/106
- Overlap e.g.
 - 7 had both disc and LRS
 - 7 of the SPL had foraminal stenosis

Results

- Mean duration symptoms 18 months
 - 95% CI 15-21 range 2-96
 - 9 pts < 6 months
 - 33 pts < 12 months
- < 12 months > No effect on outcome
 - Injection worked p=0.3
 - Subsequent operation p=0.1

Results

- Needle position good 100%
- Rootogram 57%
- Epidural spill 50%
- Rootogram or epidural spill 69%

Results

- 73/106 = 69% Injection worked
- 34/106 = 32% went on to have an operation

Results – Subsequent Operation

- No rootogram p=0.02
 - 19 op / 45 no rootogram vs 13 op / 60 rootogram+
- No epidural spill p=0.03
 - 21 op / 50 no epi spill vs 12 op / 53 epi spill +
- Neither p=0.006
 - 16 op / 33 neither vs 16 op / 73 either +

Results – Injection Worked

- Only epidural spill associated $p=0.02$
 - 29 worked / 50 no epidural spill
 - vs 42 worked / 52 with epidural spill

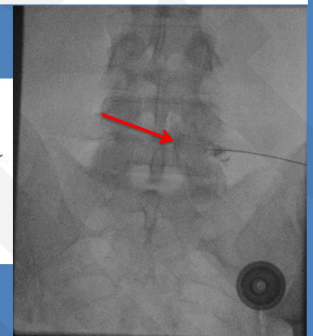
Validation

- Hourigan et al. 2014 Britspine – 33% op
 - No further treatment 44-46%
- Anjarwalla et al. 2011 SBPR – 34% op
- Riew et al. JBJSA 2000 – 29% op
- This study – 32% op

Conclusion

- Medial epidural spill seems to be associated with a better outcome - injection works / less operation
- If poor rootogram / epidural spill - consider repeating...
- Worth doing injections even if > 1 year symptoms...
- Reaudit in future and investigate PP < 3/12 symptoms

Thank you



Criteria

- **Inclusion:**
 - Lumbar radicular symptoms
 - Confirmed surgical target on MRI
- **Exclusion:**
 - Incomplete data
 - Absent radiological images
 - Incomplete f/u
 - Moved out of the region



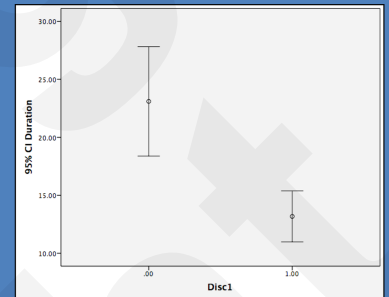
Outcome Scores - 3/12

	All	Worked Yes	Worked No	Op Yes	Op No	Epi Spill Yes	Epi Spill No
Pre VAS B	7.4	7.3	7.7	7.9	7.1	7.1	7.6
Post VAS B	5.8	6.8	5.5	6.4	5.4	5.3	6.3
Pre VAS L	7.4	7.3	7.9	7.8	7.2	7.3	7.4
Post VAS L	5.4	4.9	6.7	5.9	5	4.9	5.8
Pre ODI	54	53	55	55	52	51	55
Post ODI	45	44	55	50	45	43	52

- Scores suggest some chronicity of pain
 - Improvements not as great as expected

Results

- Disc 13 months
- LRS 24 months
- For 22 months
- SPL 19 months



Outcome Measures

This Section Is For Post Intervention / Operative Patients Only

Please circle the answer that best applies to you:

Did the intervention / surgery meet your expectations (table above)?

Yes all Yes some No Not applicable

Overall, how much did the intervention / surgery in our hospital help your problem?

Helped a lot Helped Helped a little Didn't help Made things worse

Would you have the intervention / surgery again?

Yes No Not applicable

Please rate your % improvement in back pain following the intervention / surgery

<25 26-75 >76

Please rate your % improvement in leg pain following the intervention / surgery

<25 26-75 >76

- And FU clinic letter reviewed

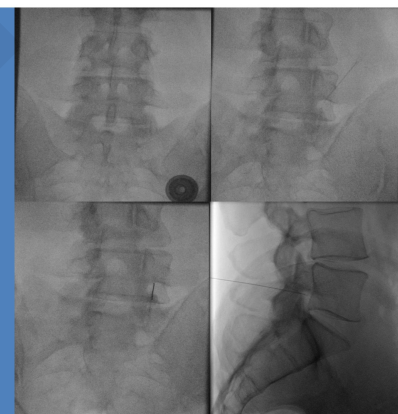
Results -Operation

- At min 6/12 and at max 30/12 FU:
 - 34/106 = 32% went on to have an operation
 - 1/3 injection didn't work had an op (9/31)
 - 1/3 injection did work had an op (25/73)

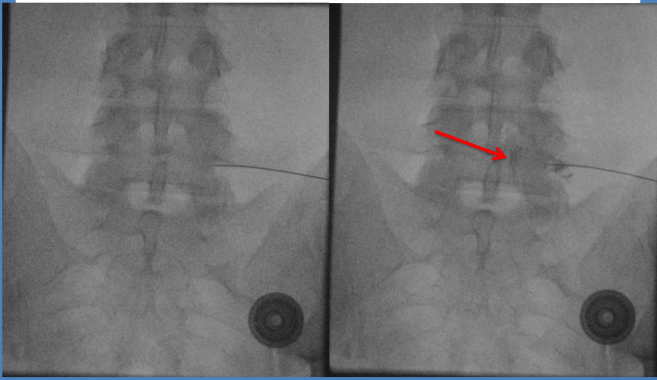
Procedure

- As above
- Root block the nerve affected by the pathology
 - L4/5 disc lat recess – L5 root block
 - L5/S1 foraminal stenosis – L5 root block
- “Therapeutic” injections >> “diagnostic”

Needle Position

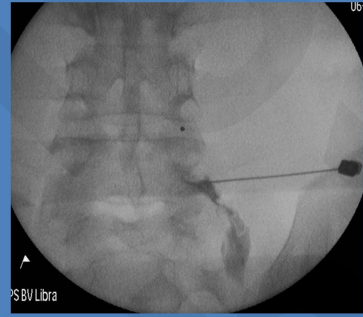


Epidural Spill



- 0.5-1ml contrast

Rootogram



- 40mg depomedrone and 4ml 0.25% marcaine