Functional Anesthetic Discography

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If the goal of discography is to identify a potentially symptomatic disc that may benefit from a treatment intervention, then how do we improve the predictive value of this test?

- Functional anesthetic discography
  - Lumbar spine
Functional Anesthetic Discography

- Coaxial over-the-wire technique is used to insert a small flexible double lumen catheter into the nucleus pulposus of a potentially symptomatic disc using fluoroscopic guidance.
- The FAD catheter is secured in place by injecting the balloon port lumen and inflating a tiny balloon at the tip of the FAD catheter.
- The 2\textsuperscript{nd} lumen allows for the injection of liquid agents (anesthetic, sterile saline) into the disc nucleus.
FAD Kit: Wireless Catheter
FAD Procedure

- Discography is performed
- Potentially symptomatic disc(s) identified
- FAD catheter placed into the disc and secured to skin surface
  - MDCT performed
  - Patient returns to recovery room
FAD Procedure

- Disc is injected with a small volume of either anesthetic or sterile NS
- Patient is asked to perform simple maneuvers which typically elicit their back symptoms
- Patient is interrogated as to whether or not there is symptomatic relief
When is the FAD catheter inserted?

- A provocative discographic response
- An equivocal discographic response by the patient with imaging evidence of abnormal disc morphology
- It may be necessary to place FAD catheters in more than one disc
Perform Discogram: Coaxial Technique
Discogram

50/50 mix sterile NS and LOCM
Insert 0.09 Guidewire

Remove Insert Needle
Insert FAD Catheter Over Guidewire

Double Lumen Catheter Passes Thru Guide Needle
Remove Guide Needle

Remove Guidewire
Inflate balloon using 0.2 - 0.3 mL LOCM
Our First Case

- 54M
- Chronic 8/10 LBP
- Abnormal L5-S1 disc
- Difficult patient
Discogram provocative at L5-S1
Unable to insert FAD catheter
Securing the Guide Needle
FAD in patient with prior surgery

- 45F
- Chronic 6/10 LBP
  - Right-sided component
- Prior L5-S1 fusion
L34 Discogram: 8/10 S; 2ml; 5 psi
FAD Catheter

FAD response at 5 minutes; complete pain relief
Discography

- L34: 2 mL at 45 psi; 7/10 S
- L45: 1.5 mL @ 23 psi, 10/10 S
- L5-S1: 1 mL @ 23 psi, pressure
MDCT
FAD catheters placed at L34, L45

<table>
<thead>
<tr>
<th>FAD response:</th>
<th>0</th>
<th>5</th>
<th>10min</th>
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<tr>
<td>L34</td>
<td>5/10</td>
<td>4/10</td>
<td>2/10</td>
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<tr>
<td>L45</td>
<td>10/10</td>
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49F 8/10 LBP and RLE pain
18g GN; 20g IN with atraumatic tip and lateral aperture
L4-5 Discogram provocative:
8/10 S at 1.5 mL and 10 psi
Insertion of FAD catheter
Balloon inflated with sterile NS
Axial Recon
FAD

- 1 mL 4% Lidocaine
- 0 minute  10/10 Exact pain
- 5 minute  8/10 pain
- 10 minute 6/10 pain

FAD concordant with provocative discographic response at L4-5
False Positive Discogram

- 34F 5/10 LBP > 1 year
- No radiculopathy

Case courtesy of Dr. Wade Wong
Discography

- Concordant at L5-S1
  - 9/10 pain
  - 1.8 mL at 10 psi
    - Opening pressure 4 psi
- No pain at L3-4 or L4-5
- Pain worsens with forward bending
- No pain reduction following injection of 0.8 mL 2% Lidocaine into L5-S1
- Patient subsequently underwent a facet joint injection at L5-S1 with relief of her symptoms
CONCLUSIONS

- Discography is a minimally invasive procedure which, in specific cases (i.e., non-compressive spinal pain syndromes), may provide useful diagnostic information about a given disc and therefore influence subsequent patient management.
CONCLUSIONS

- **FAD**
  - Our experience shows value added
  - Confirms positive discographic response
  - Excludes questionable discographic response
  - High correlation with abnormal disc morphology