The Male Pelvis
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The most common things I find clinically are:
- Sacral fractures, hemi and bilateral, acute and chronic non-healed
- Hemorrhoids
- Coccygodynia
- Pelvic pain
- Erectile dysfunction
- BPH
- Prostate Cancer

The Patients That Return Too Often
- Chronic Back Pain
- Sciatica
- Chronic Fatigue
- Headaches

Wish You were a Magician?
- You’ve tried everything you know, the patient gets a little better, but continues to return
- You wish you could pull a rabbit out of your hat (Osteopathic bag of tricks)

Sacrum
- The sacral segments normally fuse at about age 25.
- Approximately 25% of the population has one or more sacral segments that don’t fuse properly. This leaves that segment more vulnerable to injury, if they should fall on their backside. (This number was arrived at by checking sacrums in the “bone room” in Kirksville.)

Type A Minimally Displaced Non Union Sacral Fractures
Sacral Fractures, Acute and Chronic

- After a fall, the sacral segments don’t always refuse, sacral hypermobility has been found on pt.’s that hadn’t fallen in over 30 years.
- In this sacrum, note non ossification of S1-2, and S2-3. Also on S1-2 laterally, note hairline space.

Planes of Displacement

- The displacement of the segments can occur in one or all 3 planes.
- Coronal plane-segments laterally translated (side bending).
- Sagittal plane - anterior/posterior (flexion/extension)
- Transverse plane (rotation).

Structures to Test and Treat Before Reduction

- Spinal Dura
- Bilateral fixations of thoracic spine.
- Pelvic structures and floor.
- Sacrotuberous and Sacrospinous ligaments.
- Ankles.
- Upper Cervical spine.

Right Lateral View, Old Sacrum

- Note line at S1-2
- Crosses articular surface
- Note line at S2-3
- Note line at S4-5

Sacrum - Diagnosis

- Sacral fractures have a line of increased heat across the hypermobile segment, also fascial listening in opposite directions.
- Motion testing on the inferior sacrum will not translate all the way to the upper sacrum.
- This patient’s overall MTD 1st level is typically at 1.5cm, instead of 10cm.

Sacral Treatment

- Lab: One finger is inserted into the rectum, as close to the fracture as possible, the thumb is used posteriorly. Add a slight compression and follow the listening until the parts realign. Your other hand stabilizes the upper sacrum. The pt is prone, and draped.
- Additionally: treatment of anterior longitudinal ligament and sacral lymph nodes
- Additionally: palpate attachments of SS and ST ligaments to the sacrum, looking for rough areas that are tender. Press in direction of tension until it softens. (trigger bands)
Sacral Fractures

- Approximately 600 cases treated
- Approximately 80% improved
- Approximately 2% got worse
- Approximately 4% never stabilized
- Treatments internally, usually 1-2
- Treatments total, 1-30, average of 16
- Not considered stable for 4 months.

Sometimes our model is right, sometimes not.

- Is it a fracture?
- Is it a disc remnant?
- Is it an intraosseous strain?
- Is it a pseudoarthrosis?
- All of the above?

References

- Orthopedics
- Neurosurgery
- Sports medicine
- Gynecology
- Chiropractic
- Rheumatology
- Radiology
- Trauma
- Pediatrics
- Google show over 38,000 entries

References of Sacral Fractures

- Borelli, Koval, Helfet, Posterior Fracture Dislocations of the Sacroiliac Joint, Clinical Orthopedics and Related Research, number 329, August, 1996
- Ebraheim, Savolaine, Skie, Bard, Longitudinal Fractures of the Sacrum: Case Report, The journal of Trauma Vol. 36, No. 3
- Fanciullo, Bell, Stress Fractures of the Sacrum and Lower Extremities, Current Opinion in Rheumatology, 1996, 8:158-162
- McFarland, Giangarra, Sacral Stress Fractures in Athletes, Clinical Orthopedics and Related Research, Number 329, PP 240-243
- Leroux, Denat, Thomas, Biotman, Bonnel, Sacral Insufficiency Fractures Presenting as Acute Low-back Pain, Spine, volume 18, Number 16, pp2502-2506

Take Home Points

- Sacral fractures are common, not uncommon.
- Most are older, non union fractures, not the acute ones mentioned in literature.
- Majority respond well to Osteopathic reduction.
- Need to find a consistent imaging technique.
- Often a can of worms.

Indications to Evaluate and Treat Sacral Fractures

- General listening takes you there.
- Fascial listening in opposite directions intersegmentally on the sacrum.
- Chronic Fatigue.
- Fibromyalgia.
- Chronic back or neck pain.
- Chronic headaches.
Anterior Longitudinal Ligament

- Remember that the ALL is only a thickening of the connective tissue around the spine.
- **Test**: Patient supine, knees bent, palpate gently and deeply to the promontory. Do a listening test, also motion test laterally, superior and inferior.
- **Treat**: with either fascial release or a recall.
- You can also palpate this internally as presacral fascia. Check and treat with both listening and motion testing.

Sacral Lymph Nodes

- Found along the median and lateral sacral vessels and an obturator node, sometimes occurring in the obturator canal, they are outlying members of the internal iliac group. There is considerable bypassing in the iliac groups of lymph nodes. Lymphangiographic studies have demonstrated the connections between the right and left groups.
- **Lab**: Either internally or externally, palpate the lymph flow at the anterior sacrum, until it flows correctly.

Coccyx

- The coccyx has an articulation with the sacrum. Anteriorly, the anterior sacroccygeal ligaments are fascially continuous with the anterior longitudinal ligament and fibers of the sacrospinal ligament.
- The sacrospinous ligaments attach along the anterior and lateral borders of the sacrum and coccyx, with the fibers extending anterior and inferior to the spinous process of the ischium.

Coccyx

- Posteriorly, the posterior sacroccygeal ligaments are continuous with the supraspinous ligament and has fibers also from the sacrotuberous ligament.
- The sacrotuberous ligaments are a continuation of the tendon of the biceps femoris, attaching onto the ischial tuberosity, then the coccyx, sacrum, and continue as the posterior sacroiliac ligaments.

Diagnosis of SS ligament

- With the patient prone, palpate lateral to SS, the ishial spine will be found in a small depression. Press this area anteriorly, noting length of distensibility and end feel. Compare both sides.

Diagnosis of ST ligament

- With the patient prone, palpate the ishial tuberosity, then follow the sacrotuberous ligaments medially and posteriorly to the coccyx and sacrum. Press the ligaments laterally, noting ease of distensibility bilaterally.
- **New**: also palpate the attachment of the ligament to the sacrum, looking for tender areas (trigger-points).
Motion Testing Coccyx

- While palpating the coccyx with a finger on each side of the coccyx, side bend the patient to the right. If the motion is good, the coccyx will first side bend to the right, then with further body side bending, the coccyx will side bend to the left.
- Repeat testing procedure to the left.

Abnormal Test Interpretation

- When side bending the “body” to the right, the coccyx will side bend to the right, unless the left ligaments (ST or SS) are too tight.
- If the left ST or SS ligaments are too tight, the coccyx will not side bend to the right at the beginning of “body” right side bending, but will side bend to the left at the end of “body” side bending.

Coccyx Manipulation, Rectal

- If anterior ligaments are tight, stretch posteriorly.
- If posterior ligaments are tight, stretch anteriorly.
- Stretch a little, let the coccyx return, and stretch again.

Indications to Evaluate and Treat the Coccyx

- General listening takes you there.
- Pain in the area with sitting.
- Pain in the coccyx when pressed.
- Declining quality of sexual relationships.
- Recurrent cystitis.
- Urogenital ptosis.
- Urinary incontinence.
- Prostatitis and Hemmorhoids.
- Generalized devitilization and depression.

The Prostate Gland

- “The prostate is a firm, partly glandular, partly fibromuscular body, surrounding the beginning of the male urethra. It lies at a low level in the lesser pelvis, behind the inferior border of the symphysis pubis and pubic arch and anterior to the rectal ampulla, through which it may be palpated. Being somewhat conical, it presents: above, a base or vesical aspect; below, an apex and also a posterior, an anterior and two inferolateral surfaces’.
- Grays Anatomy

Cross Section of Prostate

- The lymphatic capillaries arise in the glandular acini, and anastomose to form a perilobular network. The lymph vessels are smaller near the center of the gland, and form a periprostatic subcapsular network.
Frontal Section of Prostate

- The inferolateral surfaces are related to the anterior parts of the levatores ani, which are separated from them by a plexus of veins embedded in the fibrous prostatic sheath.

Sagital Section of Prostate

- The base is largely contiguous with the neck of the bladder above it; the urethra enters here, nearer its anterior border.
- "The anterior surface, transversely narrow and convex, extends from the apex to the pubic symphysis from which it is separated by a venous plexus and loose adipose tissue. Near its superior limit it is connected to the pubic bones by the puboprostatic ligaments. The urethra emerges from this surface anterosuperior to the apex of the gland."

Posterior Prostate

- The apex is inferior and in contact with the fascia on the superior aspects of the sphincter urethrae and transversi perinei profundi."

Prostate Lymphatics

- Preaortic
- Promontory
- Internal iliac
- Middle and lateral sacral
- External iliac

Lymphatic Drainage of Prostate

Collecting vessels from the ductus end in the external iliac nodes, while those from the seminal vesicle go to the internal and external iliac nodes. Prostatic vessels end mainly in internal iliac and sacral nodes; a vessel from the posterior surface accompanies the vesical vessels to the external iliac nodes and one from the anterior surface gains the internal iliac group by joining vessels of the membranous urethra. Grays Anatomy

Enlarged Prostate

- An enlarged prostate gland can compress the urethra, thus causing problems with urination. Prostate enlargement may be caused by prostate overgrowth (benign prostatic hypertrophy or hyperplasia) or prostate cancer.
**BPH**

- Benign prostatic hypertrophy is a non-cancerous enlargement of the prostate gland, commonly found in men over the age of 50.
- Symptoms: slower and weaker urinary stream, frequency, urgency, sensation of incomplete emptying, nocturia.
- Digital rectal exam shows: Homogenous, symmetrical enlargement of the prostate.

**IPSS**

- Pt self assessment for BPH, although it cannot be used to establish a diagnosis of BPH, used to guide treatment options and monitor the response to treatment.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Score</th>
</tr>
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<tbody>
<tr>
<td>Incomplete emptying</td>
<td>1-2</td>
</tr>
<tr>
<td>Urgency</td>
<td>1-2</td>
</tr>
<tr>
<td>Frequency</td>
<td>0</td>
</tr>
<tr>
<td>Nocturia</td>
<td>0</td>
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</tbody>
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**PSA**

- PSA is organ specific, not disease specific.
- As many as 75% of men presenting with elevated PSA levels are not found to have prostate cancer after biopsy.
- In the absence of prostate cancer, serum PSA levels vary with age, race, and prostate volume.

**TURP**

- Transurethral resection is the most common surgery for BPH, but has decreased by 50% in the last decade.
- An absolute indication for TURP is recurrent urinary tract infections.
- Stents can be placed for patients unfit for TURP surgery.

**Medical Therapy**

- Relative to TURP has fewer side effects, reversible side effects, less serious side effects.
- Terazosin and doxazosin are long acting Alpha adrenergic blockers that have shown to be safe and effective for the treatment of BPH.
- Finasteride significantly decreases the long term risk of acute urinary retention and surgical intervention.
Digital Rectal Exam

- Prostate cancer is common, and should be palpated for during a rectal exam. The prostate will feel enlarged, and may have bumps. An area of hardness in the gland suggests cancer, but can also be due to prostatic stones, chronic inflammation, and other conditions.
- The median sulcus may be obscured.

Digital Rectal Exam

- The patient is left side lying or prone, covered with a sheet.
- Glove both hands, apply lubricant to your index finger.
- Lift sheet and separate the patient’s buttock checks to visualize the anus.
- Place pad of index on anus, wait for sphincter to relax, insert index, palmar aspect of finger towards the sacrum.

Palpation

- If you cannot advance, have patient contract and release anus a few times.
- If you still cannot advance, you may be in a pocket, slightly retract finger and try again.
- Try to appreciate superficial and deep external sphincters, levator ani.
- Palpate the prostate

Prostate Cancer

- 70% of men with PSA between 4 and 10ng/mL have organ confined disease.
- Treatment of prostate cancer varies depending on the stage of the cancer, it may include surgery, radiation, chemotherapy, hormonal manipulation, or a combination of these.

Anal Musculature

- Corrugator cutis ani muscle
- External anal sphincter muscle
- Internal anal sphincter muscle
- Deep external anal sphincter muscle
Sphincter Ani

- TP’s: aching pain in the anorectal region and occasionally painful bowel movements.
- Internal exam: Finger inserted to past anal sphincter, then slightly withdrawn to between internal and external ring.

Common Anal Lesions

Hemorrhoids

- Hemorrhoids are swollen (enlarged, dilated) veins (varicose veins) inside or outside the anus that are usually caused by increased pressure, such as straining when constipated or during pregnancy.
- Check liver mobility and congestion, also check sigmoid. Sometimes the hemorrhoids will reduce when you treat these structures.

Palpating the Prostate

Prostate Mobility Tests

- Motion tests:
  - compression anteriorly
  - decompression
  - Superior translation
  - Inferior translation
  - lateral to left
  - Lateral to right
  - Rotation to right and left

Pelvic Floor Muscles

- Superficial:
- Bulbopessengiosis
- Superior transverse
- Ishiocavernous
- External anal sphincter
- In males, the bulbopessengiosis and ishiocavernous contribute to erections.
Referred Pain Patterns

• Right:
  - Sphincter ani
  - Levator ani
  - Coccygeus

Myofascial Pain and Dysfunction, Travell

Referred Pain Patterns

• Gluteus Maximus

Myofascial Pain and Dysfunction, Travell

Referred Pain Patterns

• Gluteus Medius

Myofascial Pain and Dysfunction, Travell

Referred Pain Patterns

• Gluteus Minimus

Myofascial Pain and Dysfunction, Travell

Referred Pain Patterns

• Piriformis

Myofascial Pain and Dysfunction, Travell

Indications for Evaluation and Treatment of the Pelvic Floor.

• General listening takes you there.
• Urogenital problems.
• Lower extremity problems.
• Generalized low vitality.
• Congestion in the cecum or sigmoid colon.
Pelvic Floor Myofascial Trigger Points: Manual Therapy for Interstitial Cystitis and the Urgency-Frequency Syndrome

- Repetitive compression to pubococcygeus muscle.
- Stretching of urogenital diaphragm.

Obturator Internus Muscle

- Compression and stretching of tenderpoints while having the patient abduct the thigh against resistance.

Results

- 70% of cases of interstitial cystitis had marked to moderate improvement.
- 83% of urgency-frequency syndrome had marked to moderate improvement.
- 1-2 visits weekly.
- They were able to show EMG improvement on pelvic floor hypertonus.

The Pudendal Nerve

Supplies much of the pelvis.

Can become entrapped in Alcock’s canal.