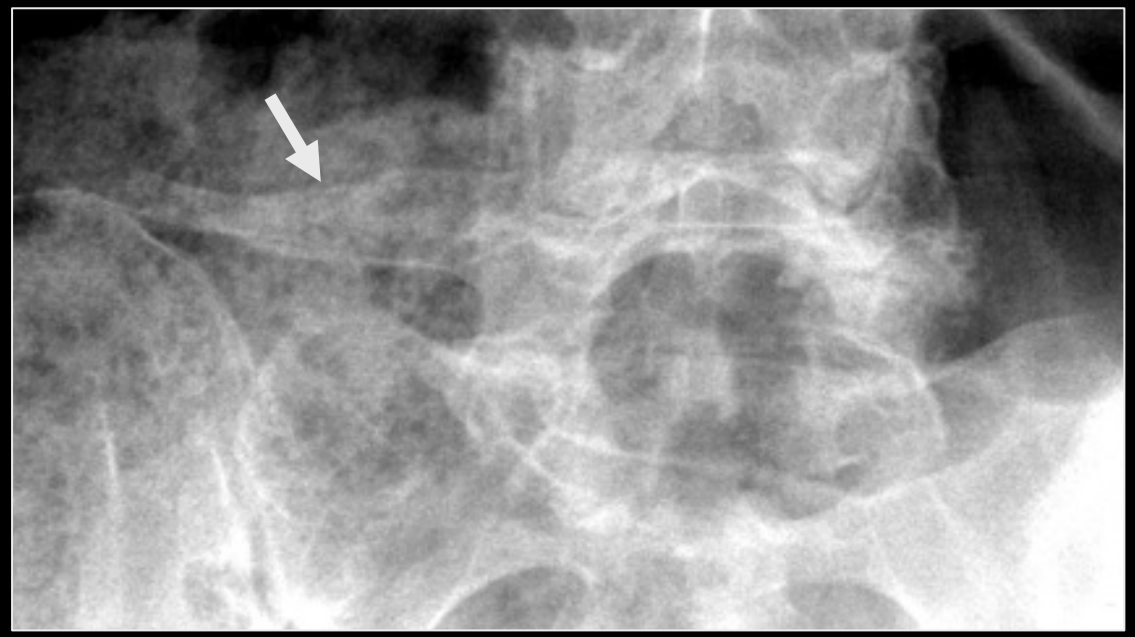
Iliolumbar Ligament Ossification and the *"Alligator Gar" Sign*



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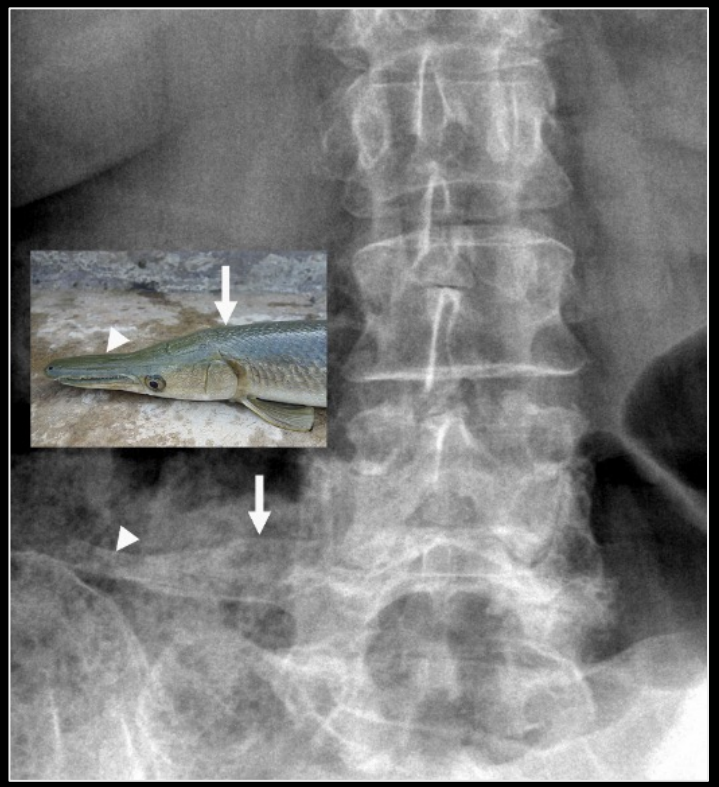
Disclosures

- James Swanson – nothing to disclose
- James Erickson – nothing to disclose
- Paul Bunch – AUR GERRAF Fellow

Background

- Although most consider Iliolumbar ligament to represent a normal variant, associations with spondyloarthropathies, hypoparathyroidism, diffuse idiopathic skeletal hyperostosis (DISH), and degenerative joint disease have been described.
- In our clinical practice, we have identified a novel potential radiographic biomarker for iliolumbar ligament ossification – *the alligator gar sign*.



Frontal radiograph of the lumbar spine with alligator gar photographic inlay demonstrates a representative example of the *alligator gar sign* in a patient with right iliolumbar ligament ossification. The gar's head is denoted by the arrow and the snout by the arrowhead.

Hypothesis and Purpose

The purposes of this study are:

1. To determine the prevalence of the *alligator gar sign* among individuals with iliolumbar ligament ossification.
2. To assess whether the *alligator gar sign* is more frequently observed among individuals with underlying clinical conditions reportedly associated with iliolumbar ligament ossification.

Materials and Methods

- Retrospective, HIPAA-compliant, IRB-approved study.
- Radiology report database queried to identify radiograph reports including the terms “ossification” and “iliolumbar ligament.”
- Two neuroradiology fellows independently reviewed all radiographs to determine presence of the *alligator gar sign*. One neuroradiology attending adjudicated all discrepant cases.
- Demographic and relevant clinical information collected from electronic medical record.

Results

- Radiology report database query identified 72 unique individuals (32 male, 40 female; mean age 62.7 years)
- *Alligator gar sign* present in:
  - 40/72 (56%) as rated by neuroradiology fellow #1
  - 16/72 (22%) as rated by neuroradiology fellow #2
    - Kappa – 0.37 (“fair” agreement)
- Following neuroradiology attending adjudication, *alligator gar sign* present in 30/72 (***42%***) – right-sided in 21 (70%), left-sided in 6 (20%), and bilateral in 3 (10%)

Results

Characteristic		Total (n=72)	Alligator Gar + (n=30; 42%)	Alligator Gar - (n=42; 58%)	p
Sex	*Male*	32 (44%)	9 (30%)	23 (55%)	0.0371[a]
	Female	40 (56%)	21 (70%)	19 (45%)	
Age (years)	*Mean (SD)*	62.7 (15.1)	65.6 (13.7)	60.6 (15.1)	0.15[b]
Underlying clinical condition associated with iliolumbar ligament ossification?	*Yes*	17 (24%)	5 (17%)	12 (29%)	0.24[a]
	No	55 (76%)	25 (83%)	30 (71%)	

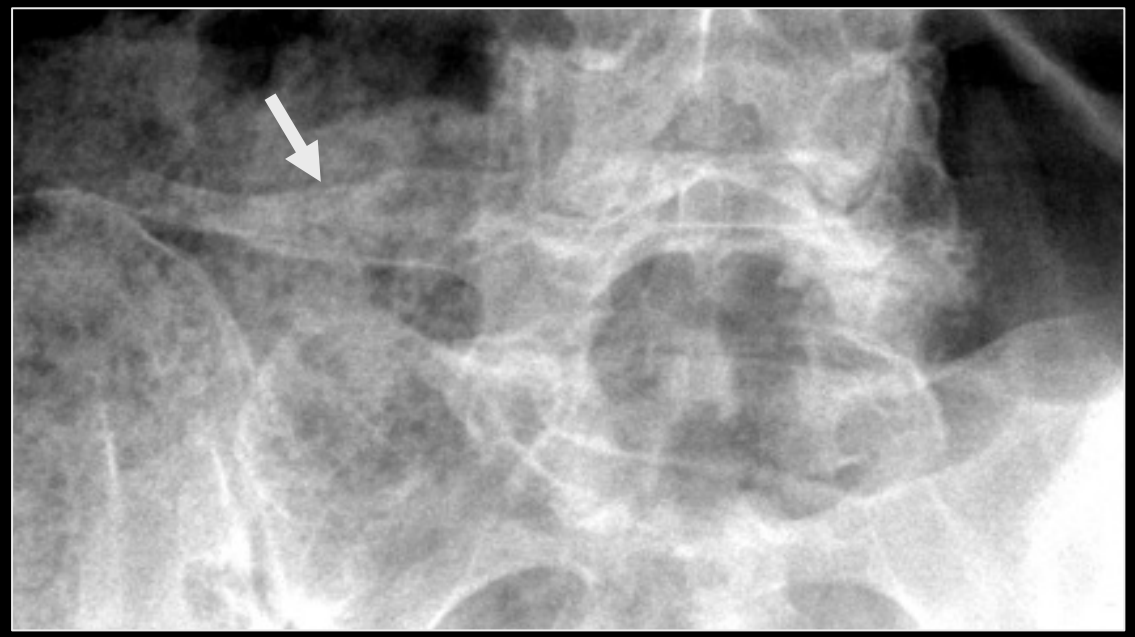
[a]Pearson chi square test; [b]Student t test

Most common underlying clinical conditions – DISH (n=8), ankylosing spondylitis (n=4), inflammatory bowel disease (n=2)

Conclusions

- The *alligator gar sign* was observed in ***42%*** of individuals with iliolumbar ligament ossification.
- More common in ***females*** than males.
- Underlying clinical conditions associated with iliolumbar ligament ossification observed with similar frequency among individuals with and without the *alligator gar sign*.

Iliolumbar Ligament Ossification and the *"Alligator Gar" Sign*



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