

# Shenton's Line of the Wrist

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## Objectives:

- On true lateral xrays (pisiform overlies the volar capitate head and scaphoid tuberosity), there is a smooth transition or "arc" (Shenton's line of the wrist) created by the volar surface of the radial styloid and volar surface of the waist and tuberosity of the scaphoid.
- If this line is consistently present on uninjured wrists and disrupted on injured wrists/wrists with carpal instability, it can be used as a guide for treatment and possible diagnosis during office examinations similar to Maloney's line in the shoulder and Shenton's line in the hip.

## Methods:

- A retrospective review was performed by searching Centricity for wrist xrays that were performed between January 2016 and May 2017 to identify uninjured (No prior fracture or prior surgery) wrist xrays.
- Next, a review of proximal row carpectomy surgeries performed between April 2013 and May 2017 was performed to identify preoperative wrist xrays of patients with scapholunate advanced collapse.
- Only true lateral xrays (pisiform overlies the volar capitate head and scaphoid tuberosity) were included in the study.
- The xrays were then evaluated for the presence or absence of "Shenton's line" and measurements of the scapholunate angle, capitulate angle, and scapholunate interval were recorded.

## Results:

- 106 uninjured wrists, 50 SLAC wrists
- Shenton's line present in:
  - 103/106 (97.17%) uninjured wrists
  - 10/50 (20%) SLAC wrists
- Shenton's line has a 93% PPV and 91% NPV for carpal malalignment

## Conclusions:

- In normal, un-injured wrists, the scaphoid tuberosity and radial styloid create an arc/line on neutral rotation, true lateral x-rays.
- If this arc/line is disrupted, there is high likelihood the patient has carpal malalignment/instability

	"Shenton's Line"	SL Angle	CL Angle	SL Interval
Normal Wrists	103/106 (97.17%)	49° +/- 7°	6.8°	2.28 +/- 0.57mm
SLAC Wrists	10/50 (20%)	76° +/- 16°	10.9°	5.53 +/- 1.29mm
	p < 0.001	p < 0.001	p = 0.001	p < 0.001

Shenton's Line	Value	95% CI
Sensitivity	80%	66% - 90%
Specificity	97%	92% - 99%
Positive Predictive Value	93%	81% - 98%
Negative Predictive Value	91%	86% - 95%

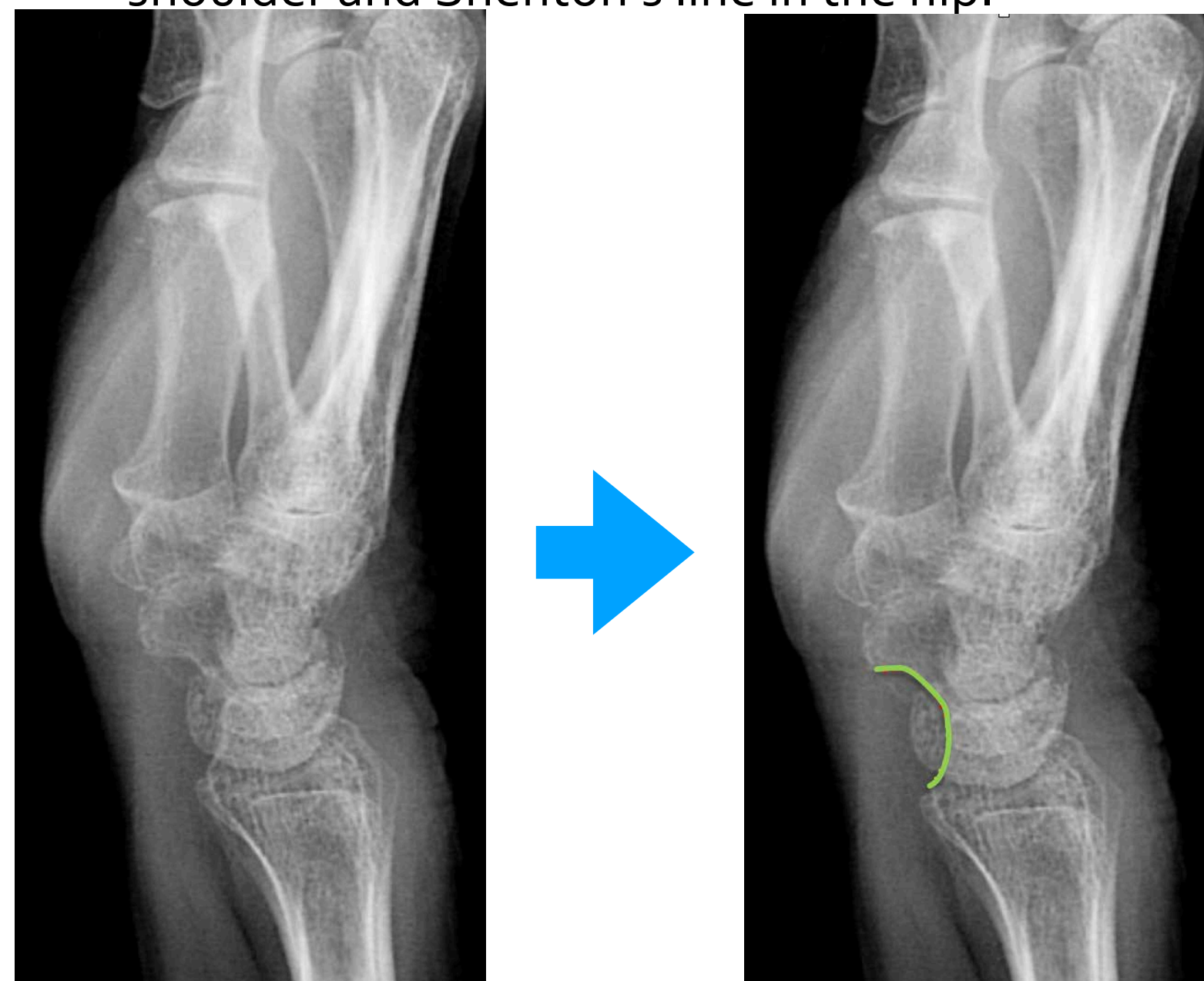


Figure 1: True lateral X-ray with Shenton's line highlighted

