My wife injury

Date of slides preparation 9/7/2014

The accident

- My wife is 32 years old healthy cardiologist and we have a 3 years old boy
- I am a 34 years old urologist
- Both started practice 1 year ago only
- She is very active in work and as mother
- I had a car accident on 24/5/2014 in Saudi Arabia where we both work at a major hospital, (that is 1 month and a half from today).
- I was the driver and my wife was setting next to me
- The front of my car went to the side of big car so it was a direct collision
- My wife held her self in place by pushing on her left foot to protect herself from the dashboard

- She developed severe left foot pain and was unable to weight bear
- Took her immediately to the hospital where we work
- She had swelling and tenderness on the dorsum
- Plantar echimosis
- X-rays were done and seemed almost normal

- An on-call junior orthopedist checked and said to her you might have a cuboid fracture
- He put for her a partial cast and told her to come back to clinic after 4 days so edema is less in order to repeat x-rays to rule out other major injuries (and I think he was meaning lisfranc)
- Hsaid it is important to follow up because certain injuries could be missed and will cause you long life pain
- Strict non weight bearing with leg elevation and NSAIDs for 4 days

Time of injury x-rays 24/5/2014

Im: 1/1 Se: 3 00-WL: 1969 WW: 2298 [D]





- During the first few days my wife was strict non weight bearing
- Kept her leg elevated
- Applied ice packs
- Her pain almost subsided and edema decreased significantly
- She even told me I feel normal I think there is no fracture

- 4 days after we went to the assigned ortho doctor who is a consultant working at the same hospital since 10 years he has 2 fellowships in ortho oncology from north America
- He removed the cast, examined her, he was trying to assess the joint stability by moving the forefoot I think
- Then he ordered CT of the foot which showed the following

CT on 28/5/2014

Topogram

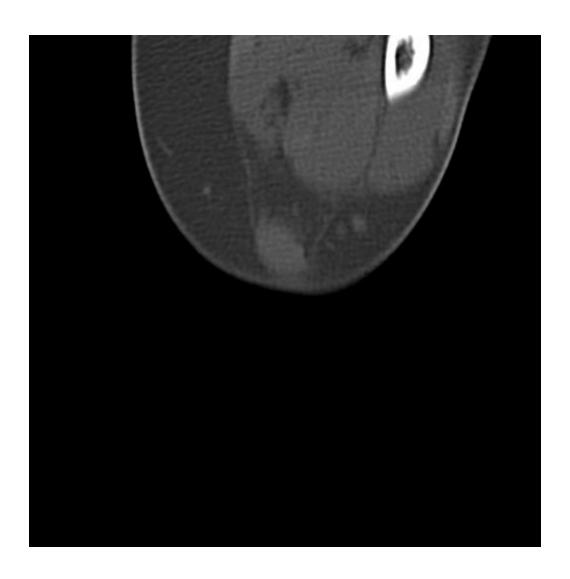
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20 11147 2014 12.			Lowe	r Evtromit	tion Extra		
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Total mAs 2013	Total DLP 26	4 mGy*c	cm				
	Scan	kV	mAs / ref.	CTDIvol mGy	DLP mGy*cm	TI s	cSL mm
Patient Position F	-SP						
Topogram	1	120	36 mA			2.7	0.6
Extremity	2	120	127	9.19	264	1.0	0.6

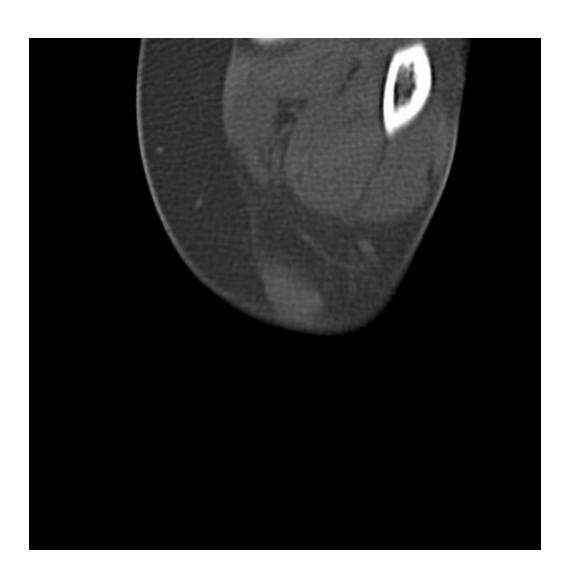
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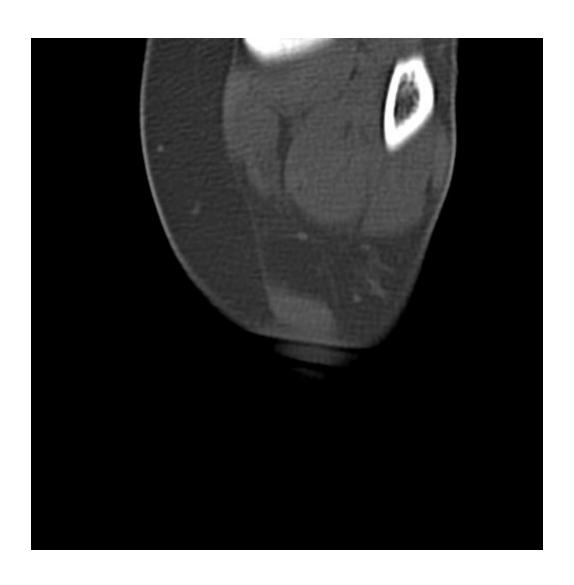
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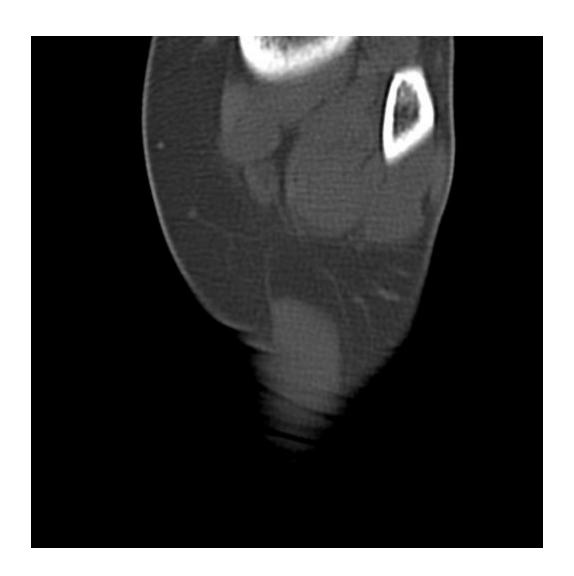


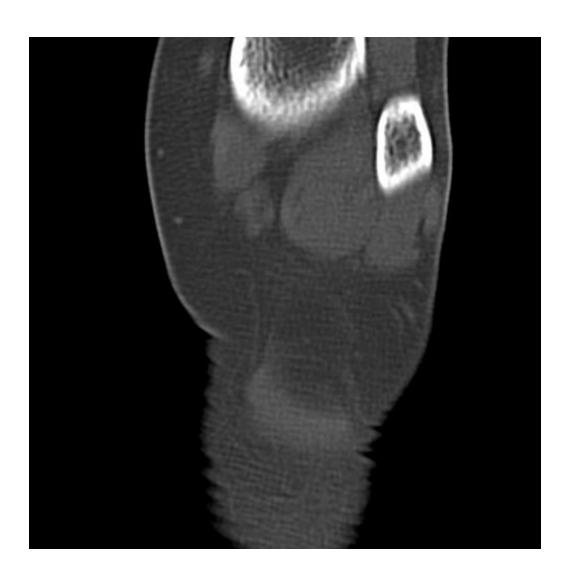
extremity



















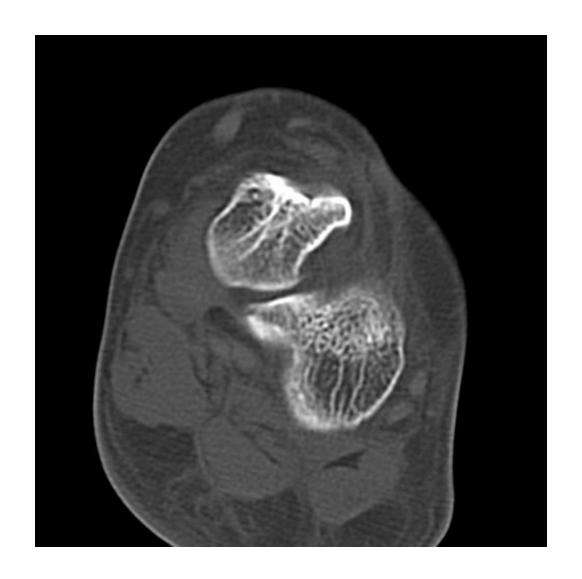


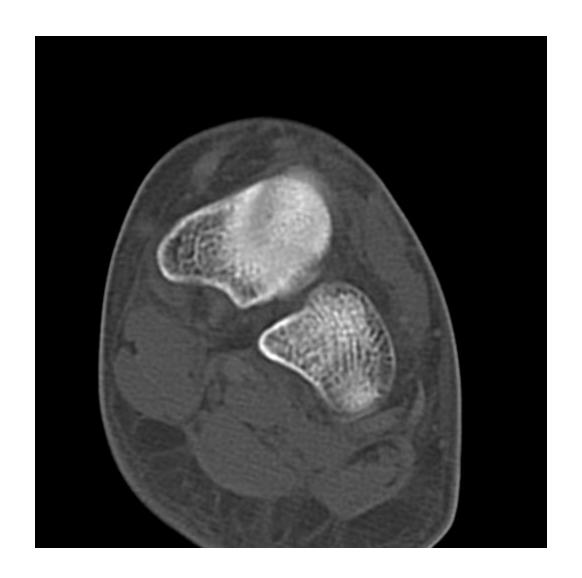


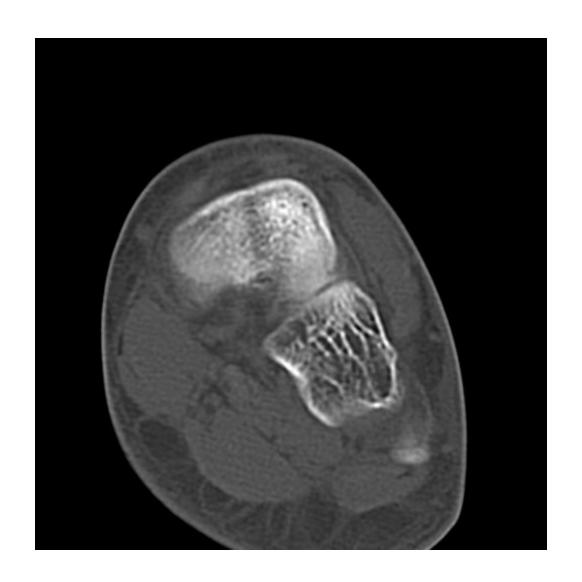




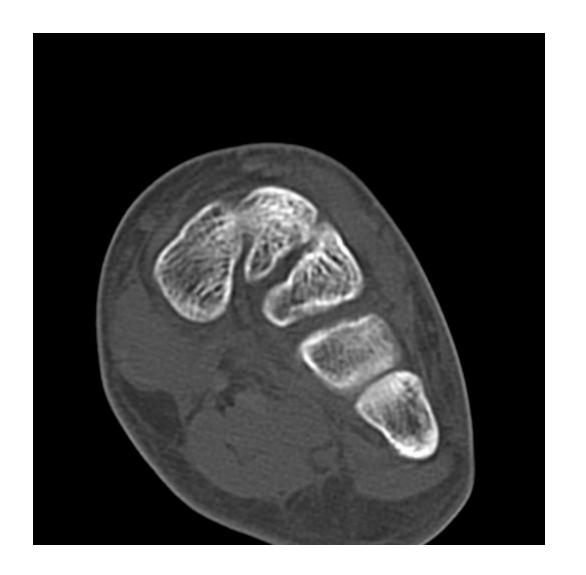


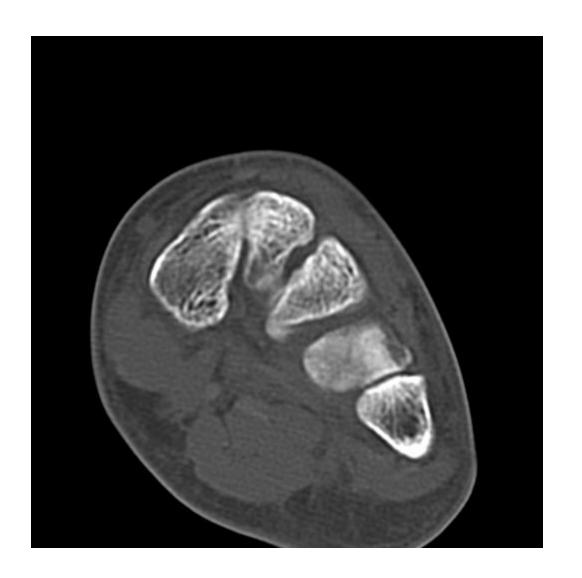


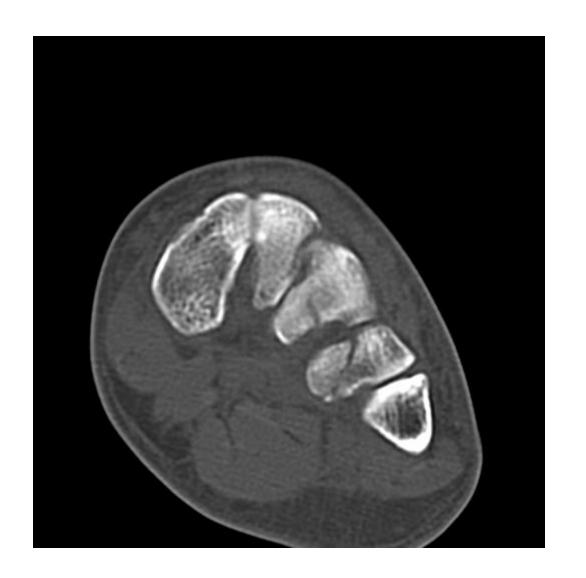


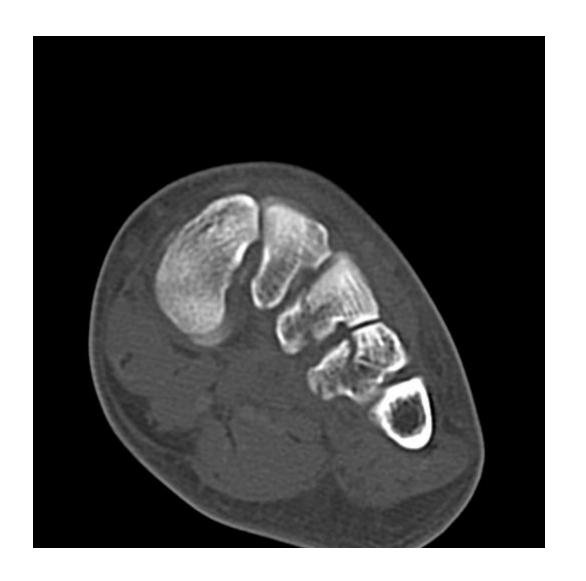


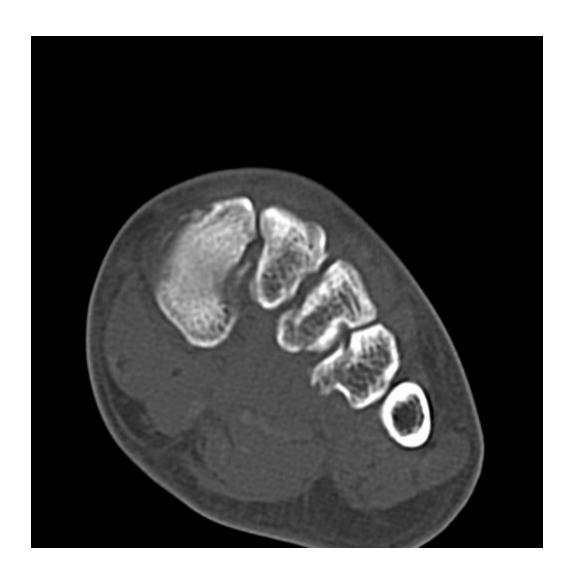




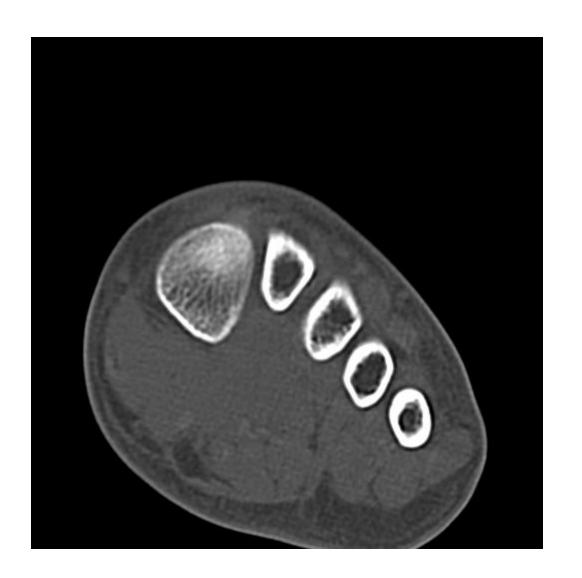


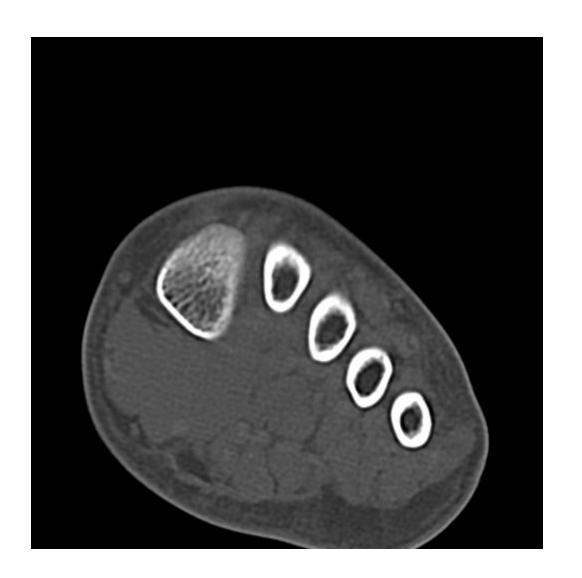


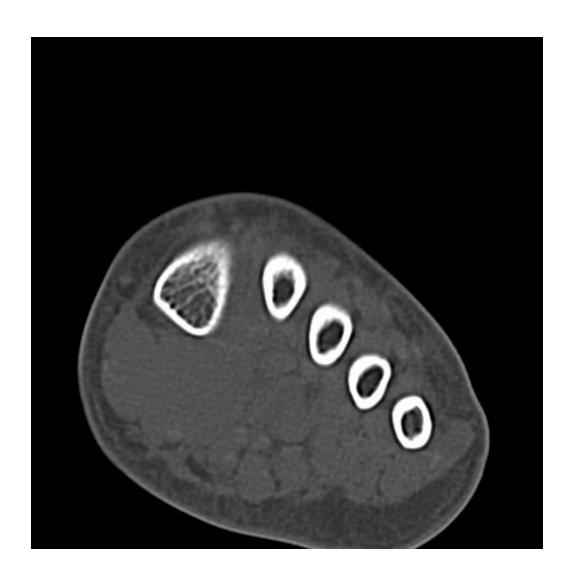






















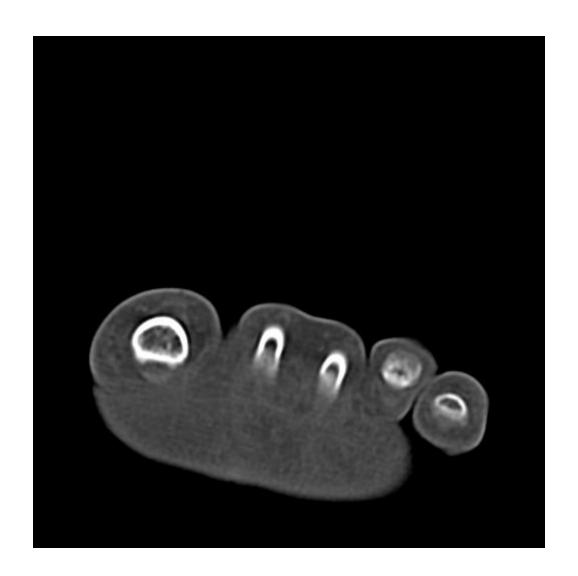






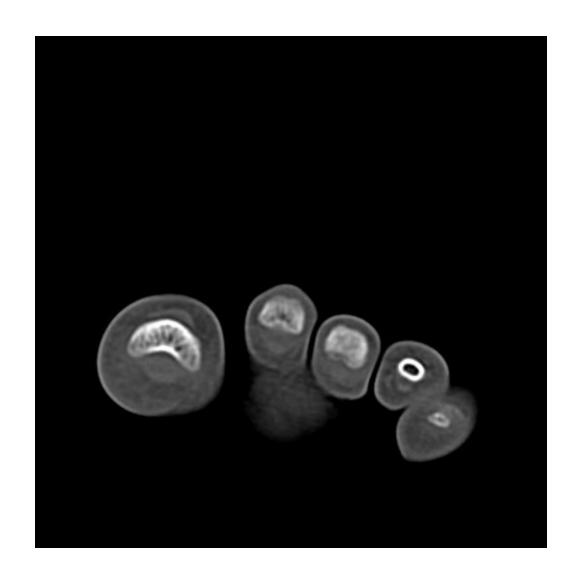








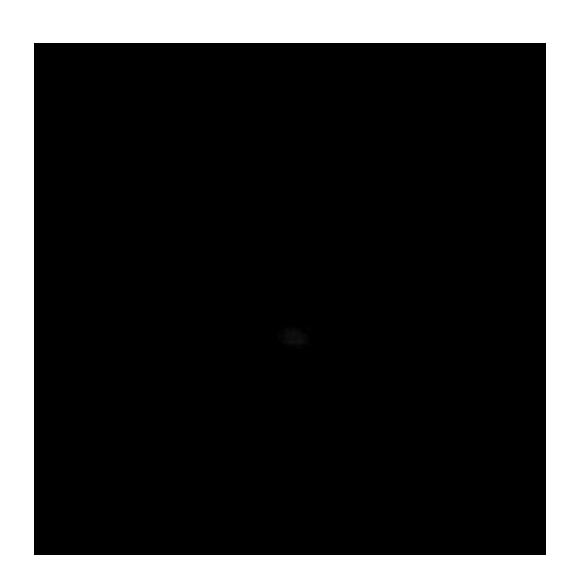




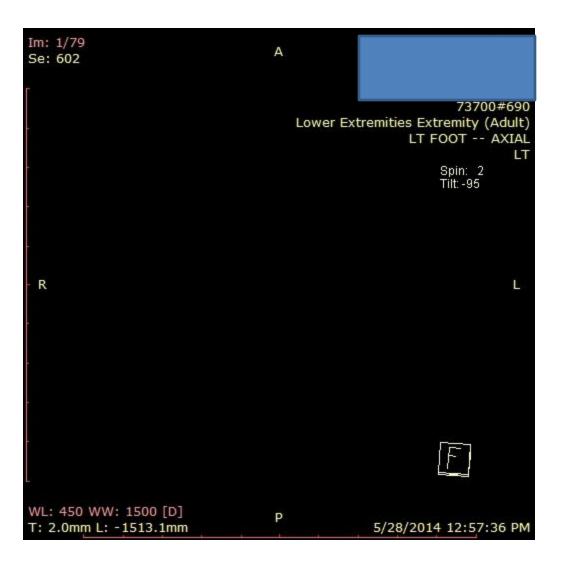








axial



















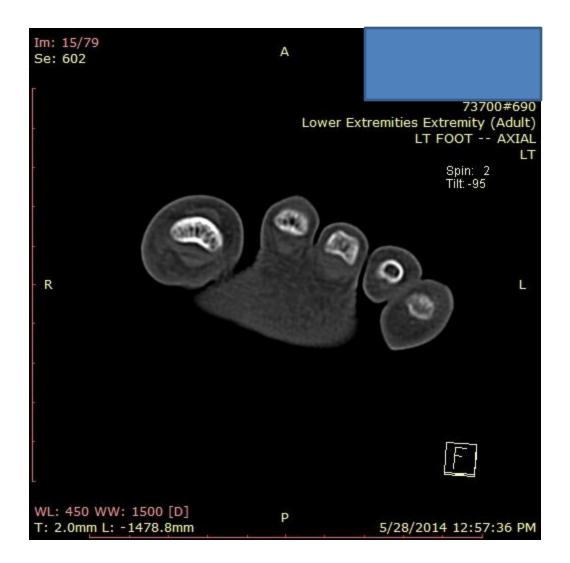




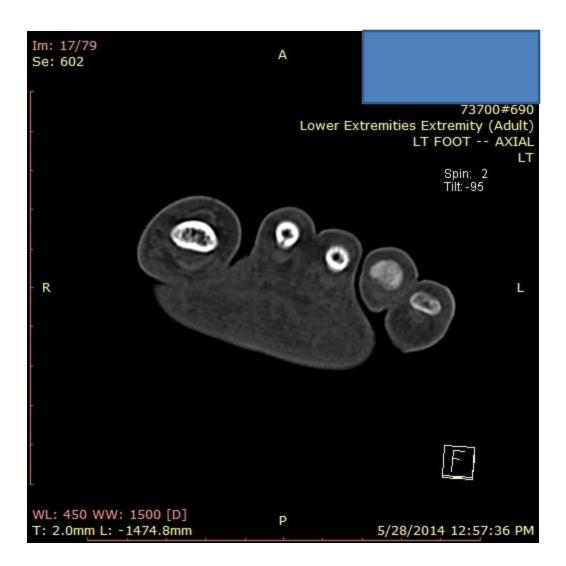


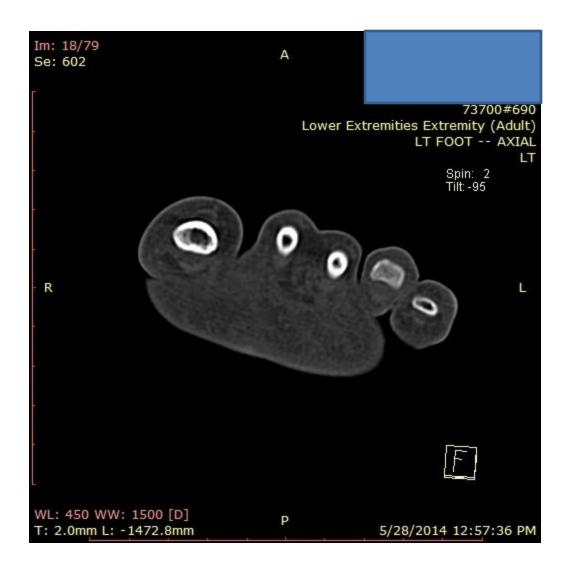


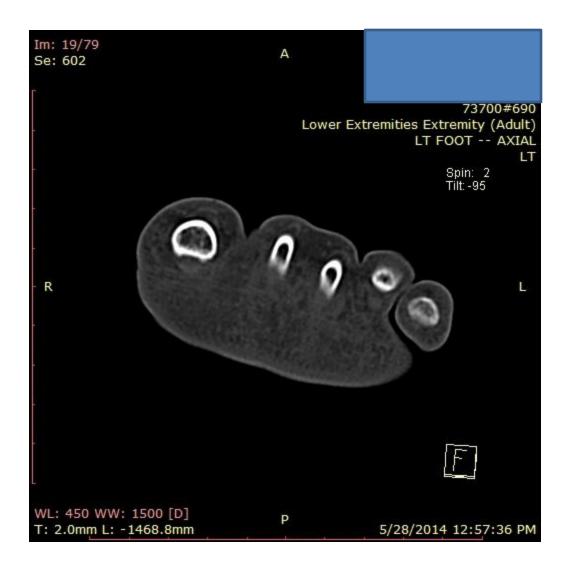


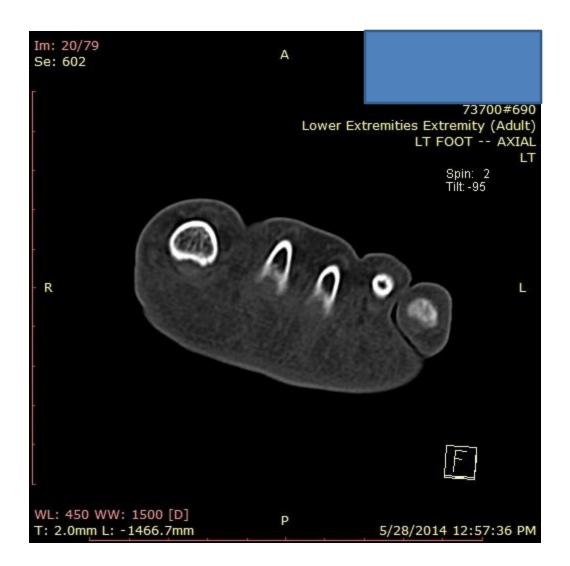












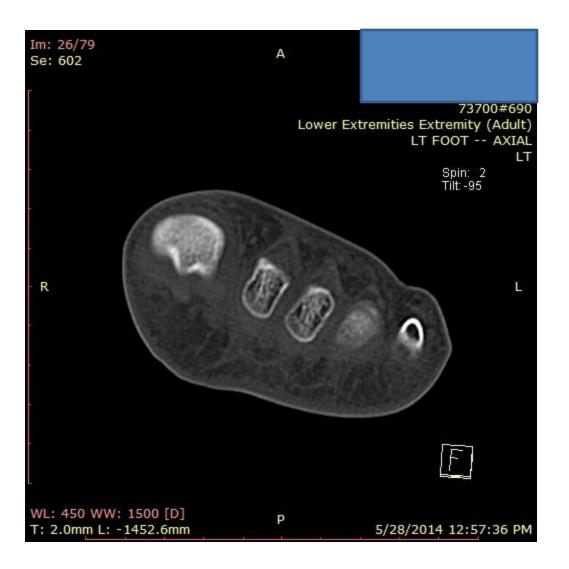


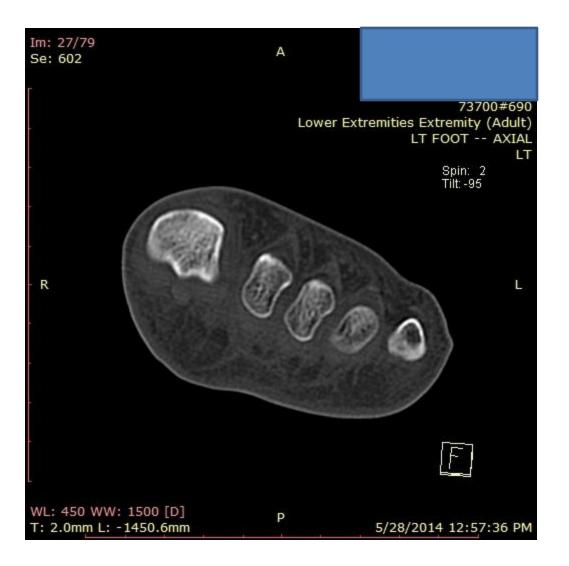






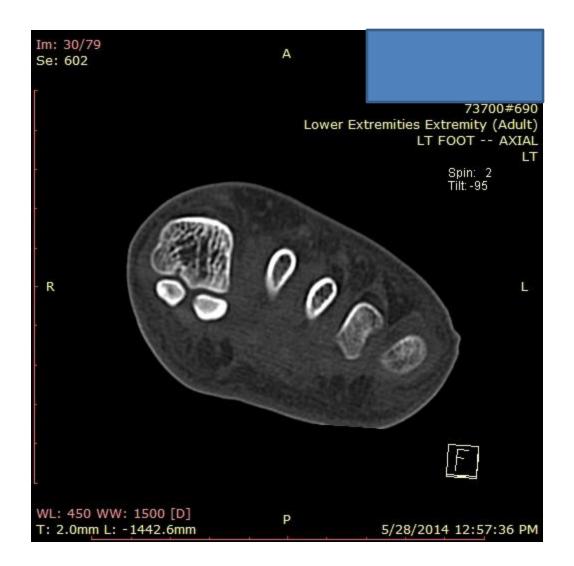


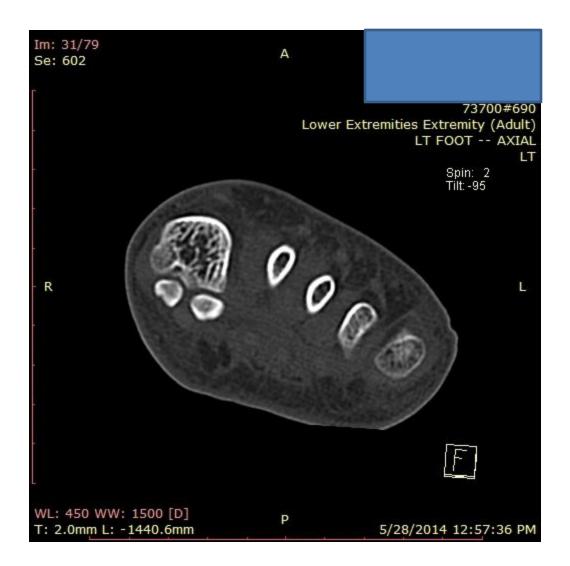


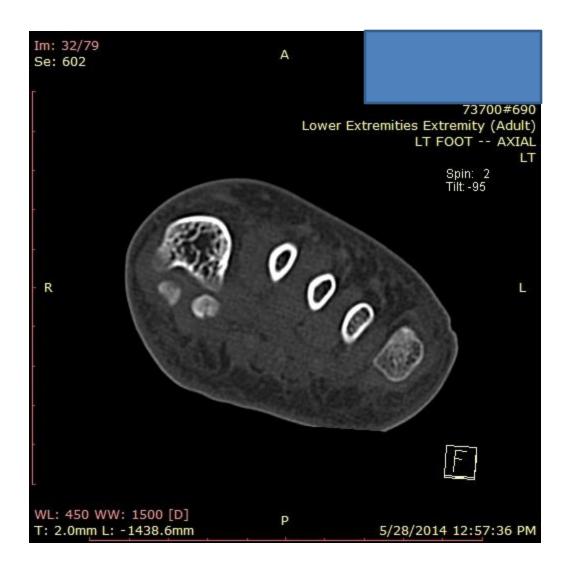


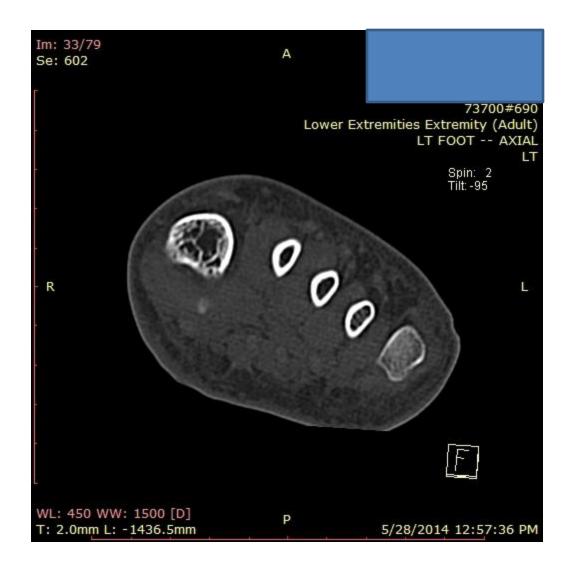


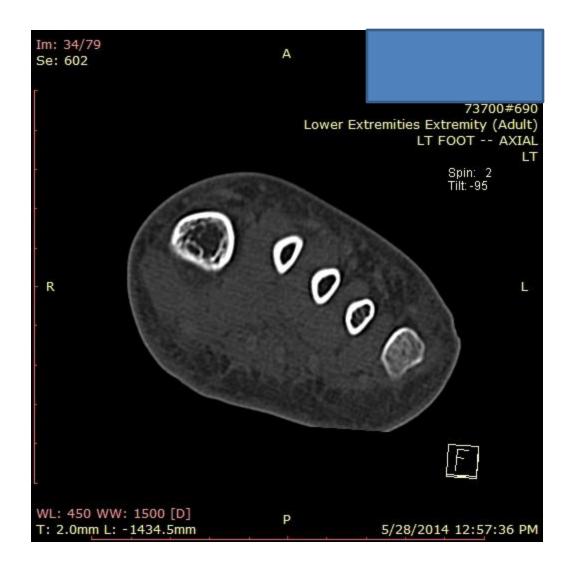


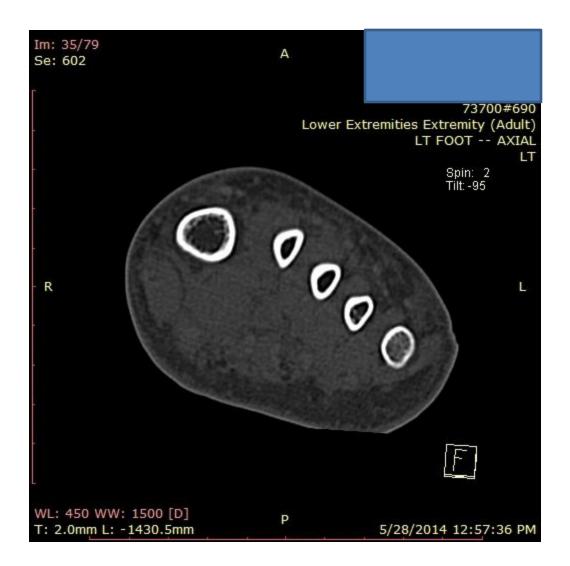


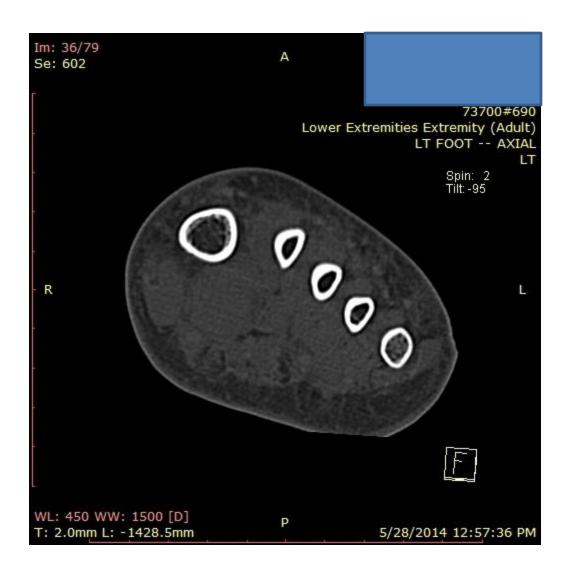






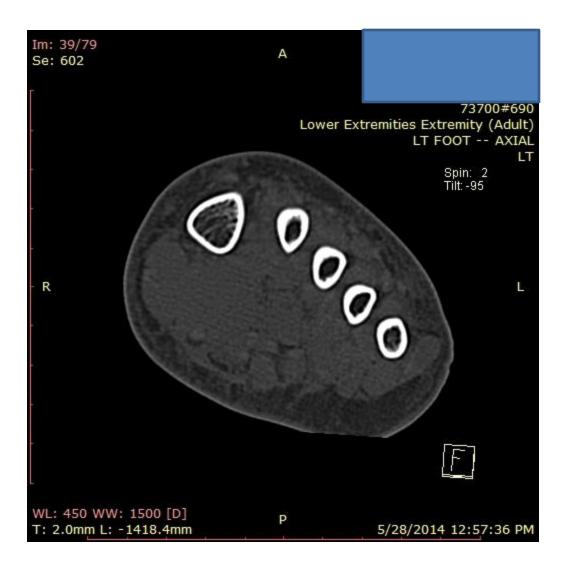




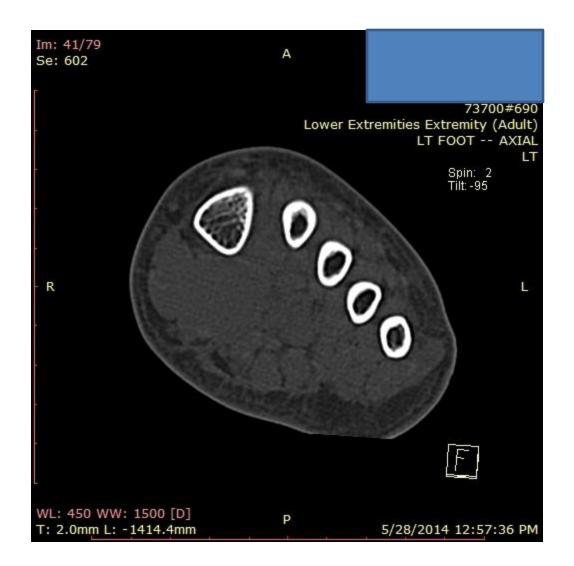




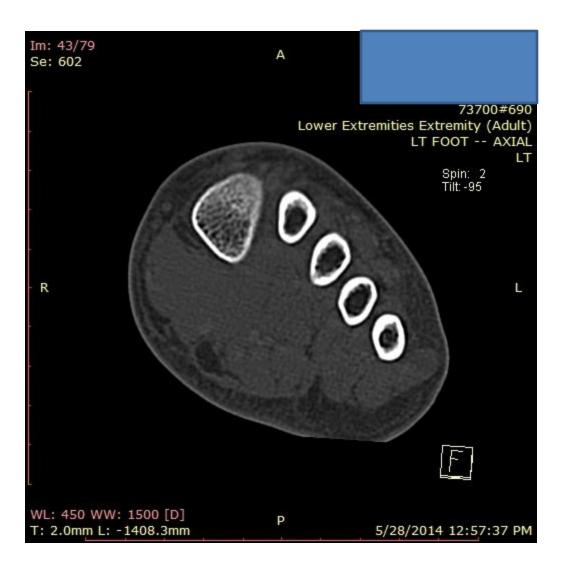


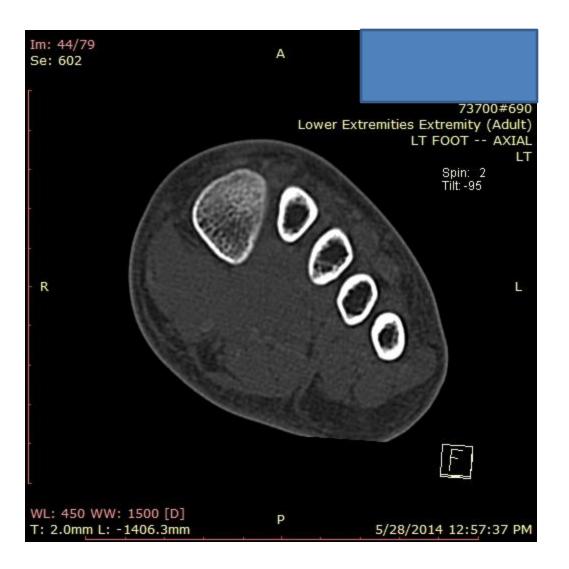


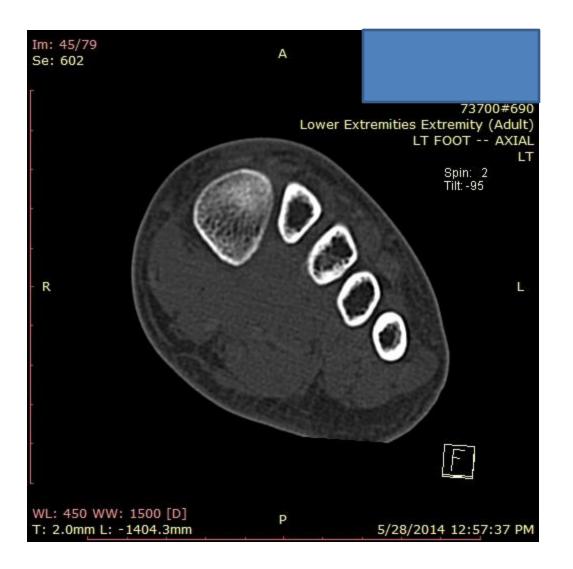


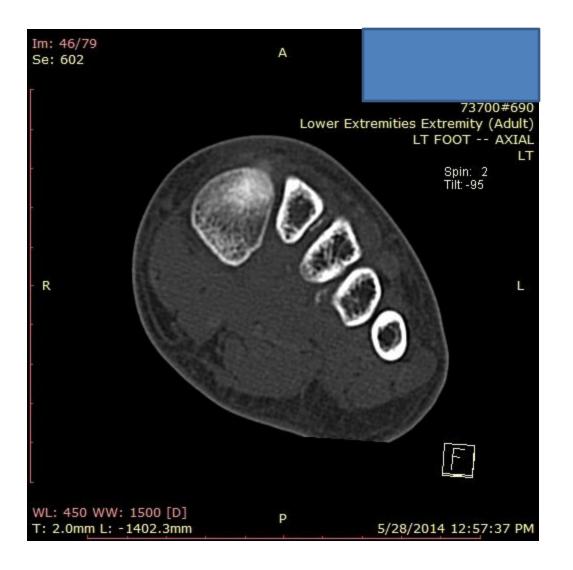


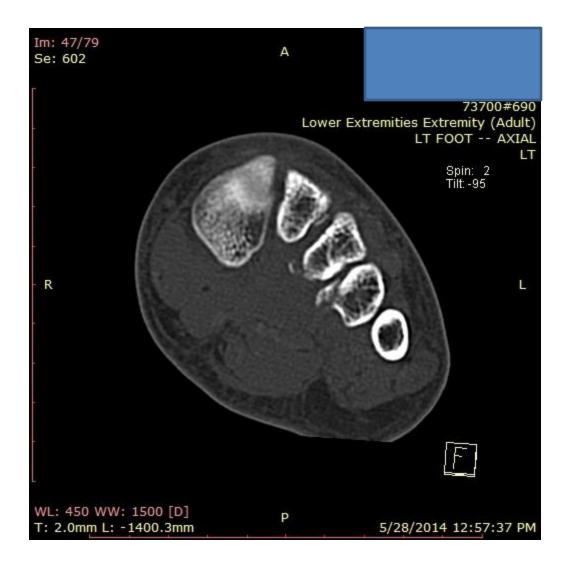


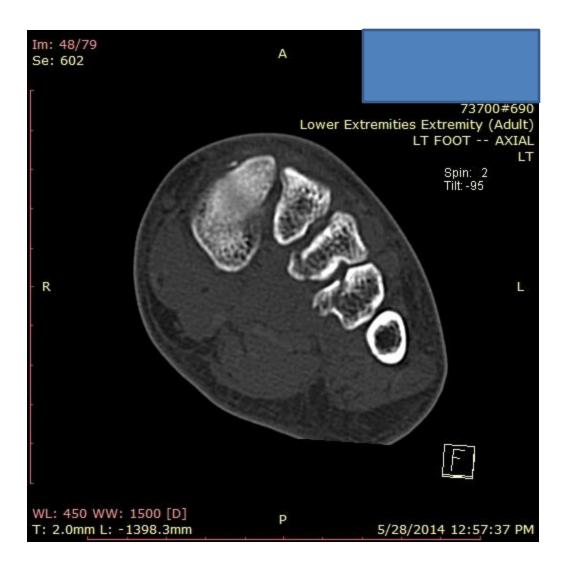




































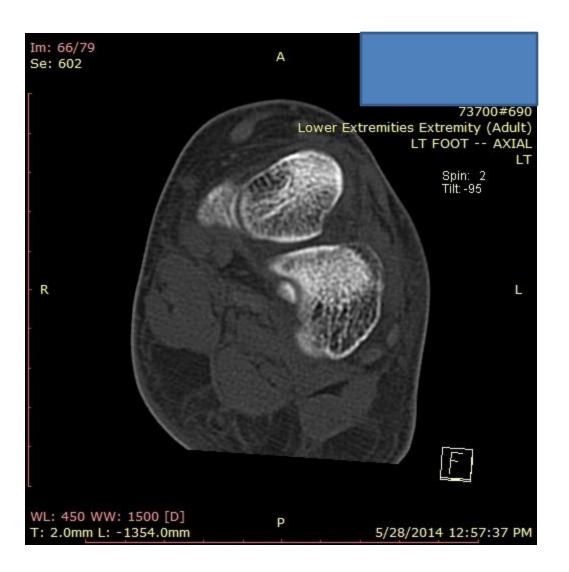




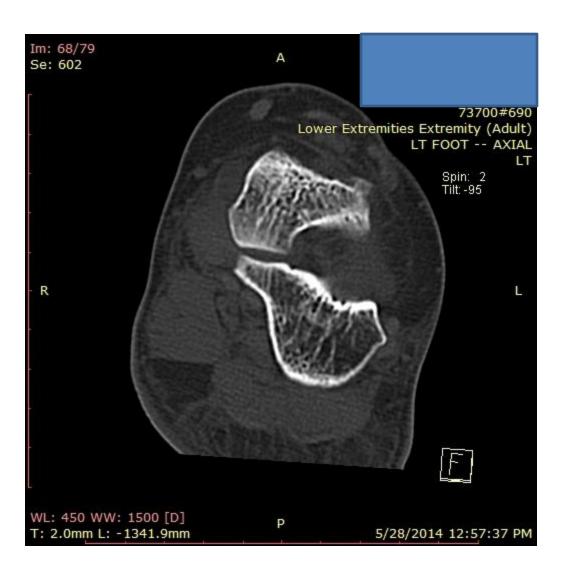


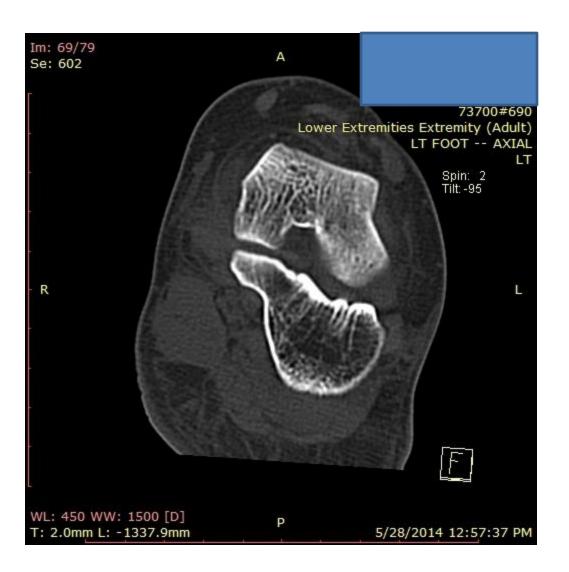


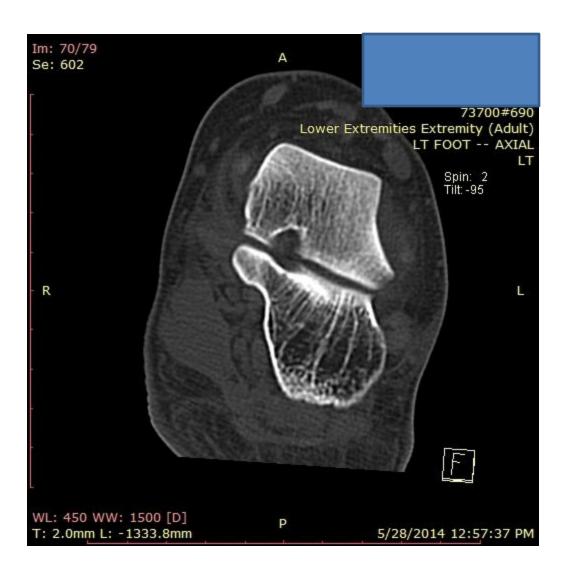


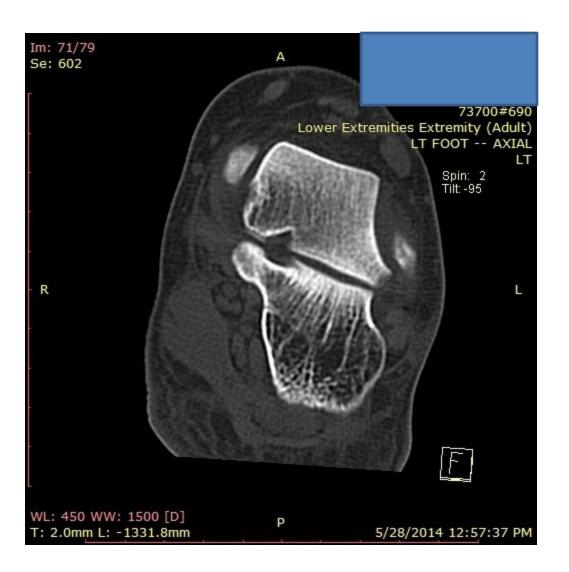
















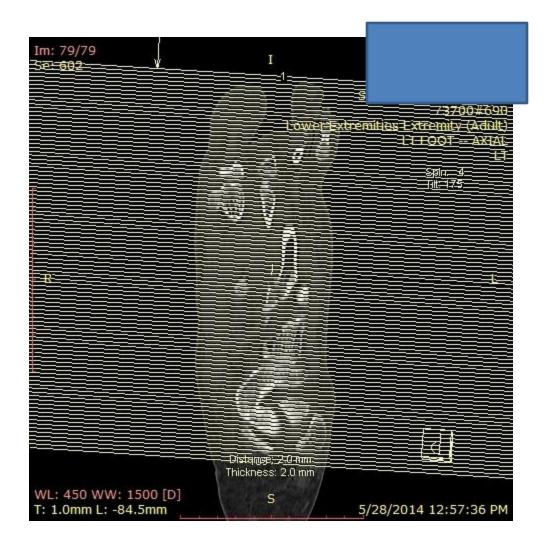






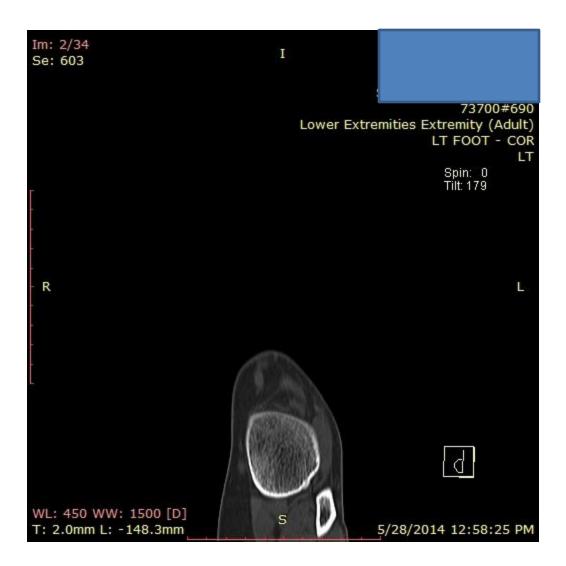


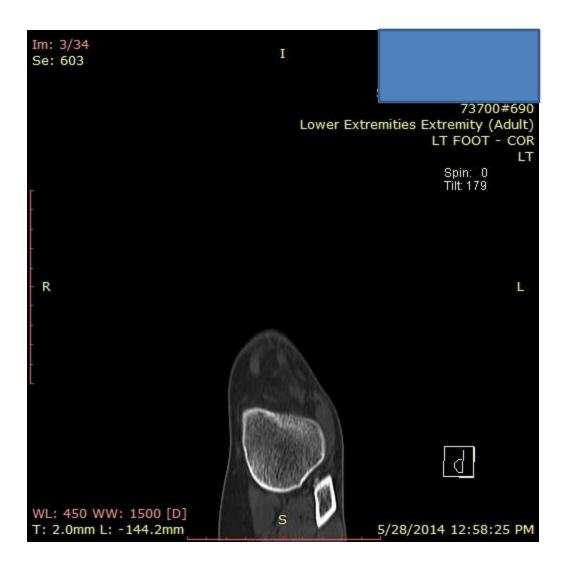




Coronal



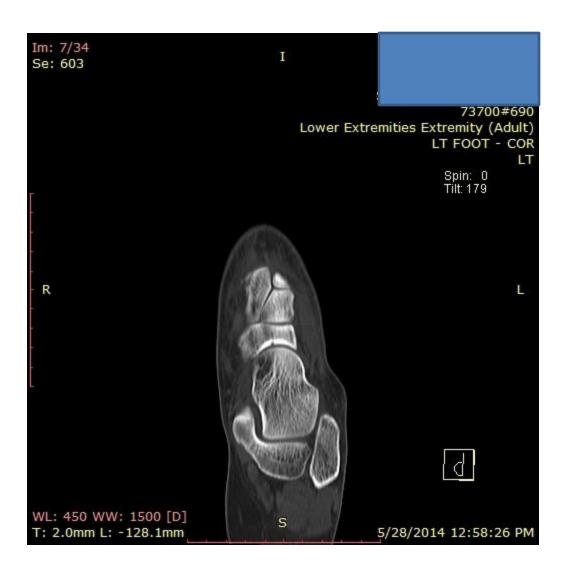


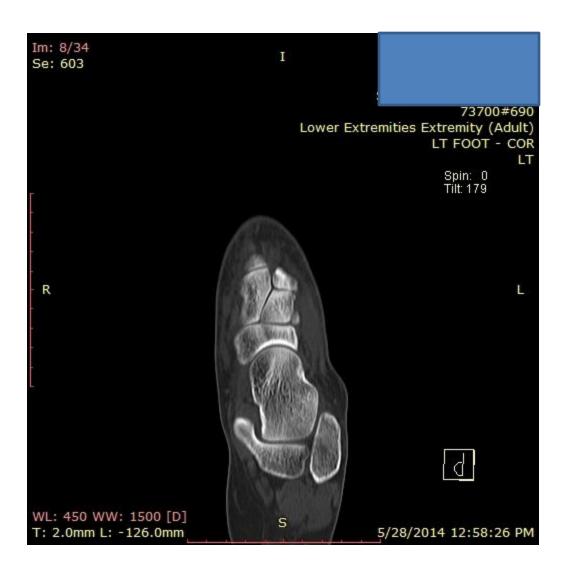


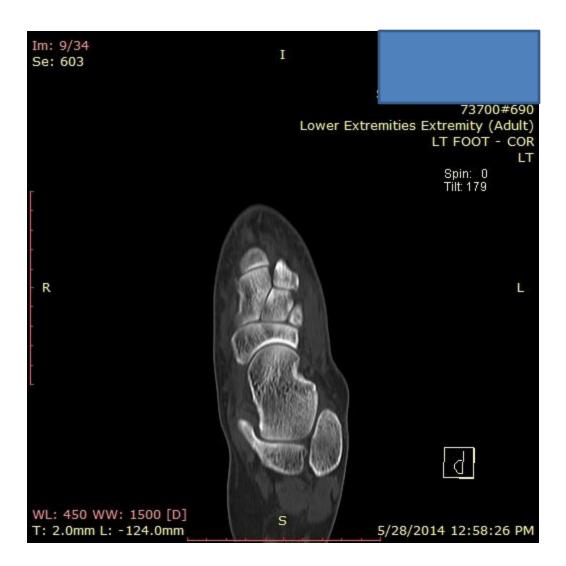






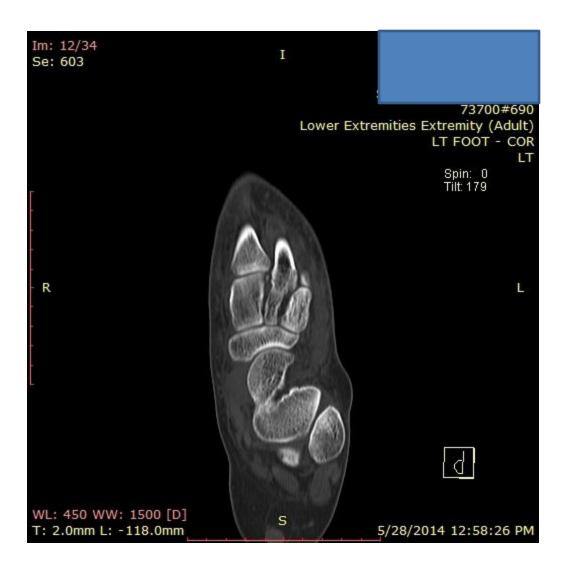


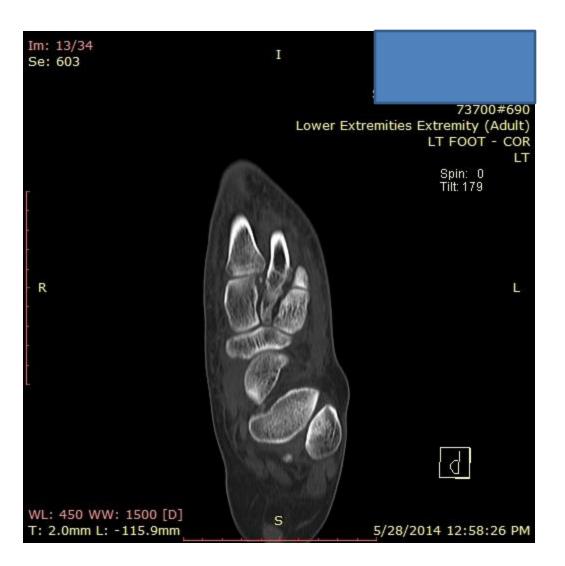




















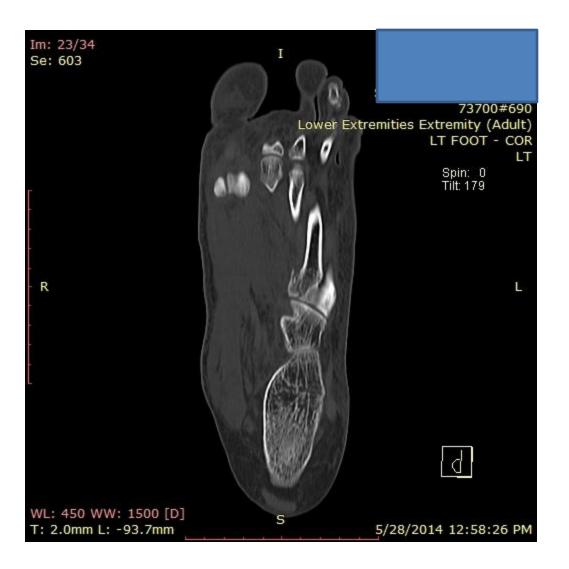


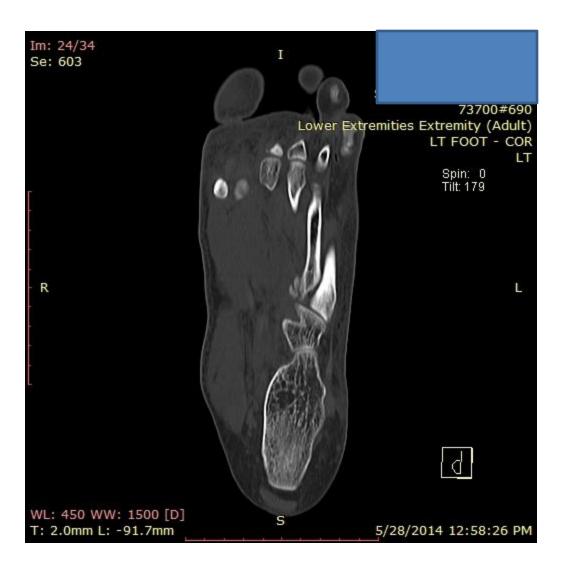


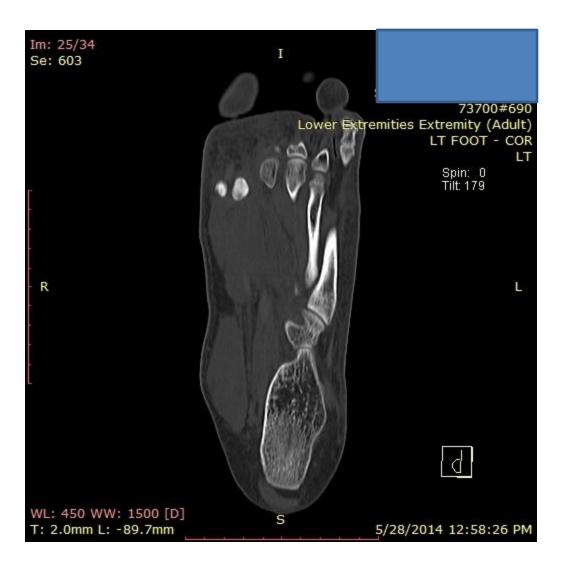












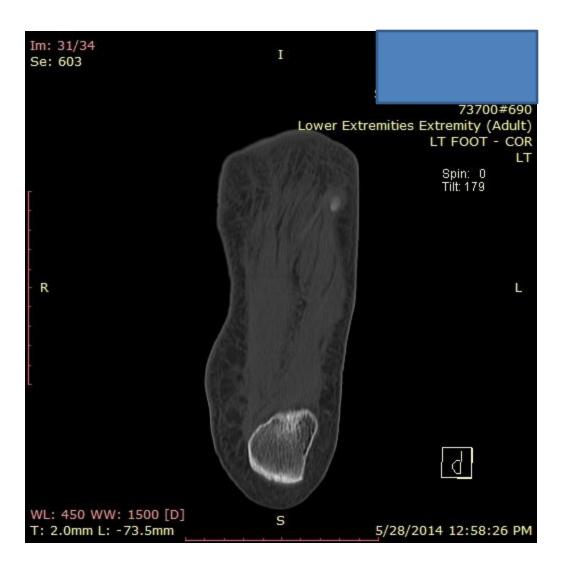






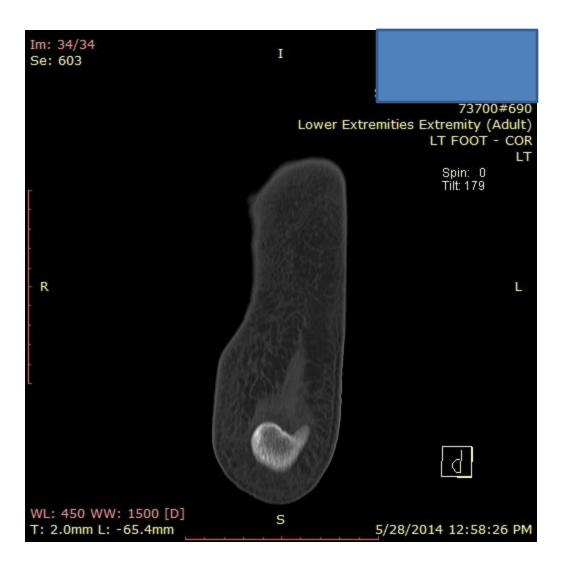




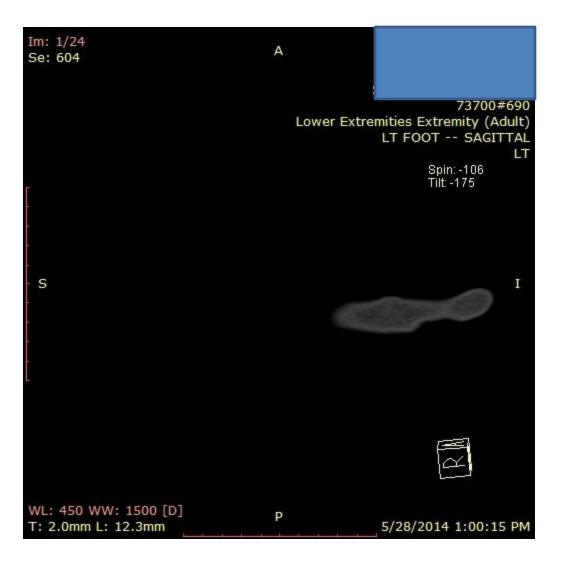








Sagital































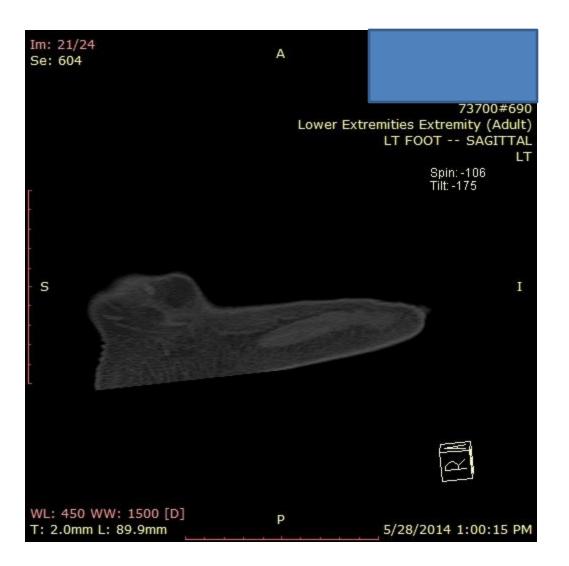


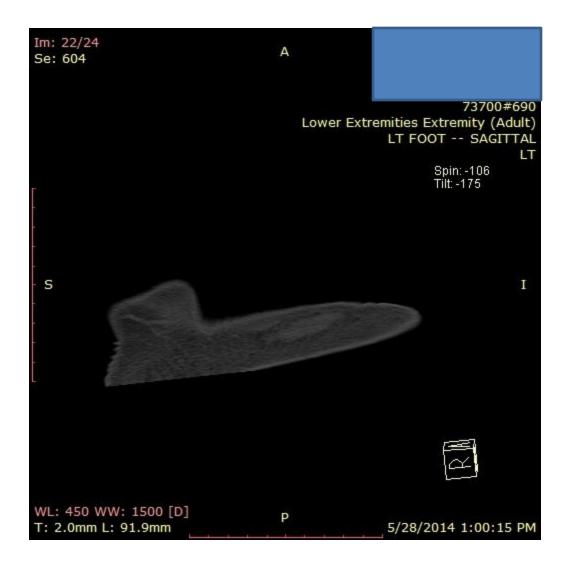




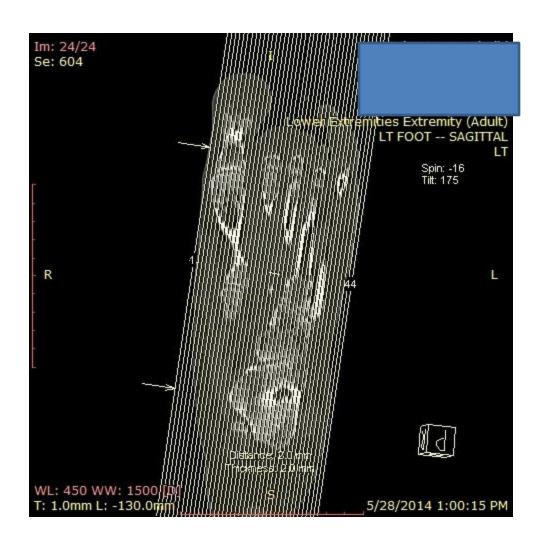












- The CT as shown revealed 2nd 3rd 4th basal metatarsal fractures and medial cuboid avulsion fractures
- It was a big shock
- The doctor then said all the fractures are non displaced and joints are in place
- He ordered additional weight bearing xrays

Weight bearing xrays 4 days after the injury just after the CT by 1 hour on 28/5/2014

- Each foot was x-rayed separetley because of the machine design
- She applied good stress on each foot during the process and tolerated the pain
- I was present during all the processes









- The doctor said that the weight bearing xrays are good
- There is good joint alignment and no significant widening between the first and second metatarsals
- He said thanks god there is no lisfranc dislocation and fractures are in place other wise she needed surgery
- He said managemnt is conservative but long
- HE did put a full cast to continue 6 weeks and told her to be strict non weight bearing, with leg elevation at all times
- He gave her 6 weeks sick leave
- And after cast removal will repeat x-rays and put foam walker for additional 6 weeks
- Oh my god we said
- He answered you should thank god it is only this
- So we said

- She followed up after 1 week from full cast application, for check up, the edema was decreased significantly and she was off pain at that time
- He confirmed that the cast is fitting her and not too tight or to wide so no need to change
- So he kept it and told her to come back for cast removal and x-rays after finishing the 6 weeks
- No x-rays was done at that time

- During that period she was doing fine
- And just 10 days before removal of the cast I started my research on lisfranc and was astonished by these injuries and their implications
- And I became afraid asking myself all the day what if he missed it initilly, why he did not follow up by x-rays, may be the edema was preventing the true injury from showing up
- But by that time it was only few days until cast removal so we waited with fear.

- What increased my fears during that period is things that I found after my research and review of the previous xrays:
 - the presence of a fleck sign on CT
 - Basal metatrsal fx s???
 - Medial cuboid avulsion fxs ???
 - Plantar echimosis initially



- But by that time it was only few days until cast removal so we waited with fear
- And my concerns came out because of my late research about the subject
- Noting that I am a urologist, but I read more than 30 articles about the diagnosis and management of lisfrancs to understand this entity because of my fear from its complications

On 2/7/2014

- That is 1 week ago
- The cast was removed
- Regular non weight bearing xrays were taken
- And thanks god every thing was in place

Non weight bearing X-rays after cast removal on 2/7/2014







- The doctor assured us
- Asked my wife to try to walk but she was afraid
- She could not walk well in the clinic, only with crutches
- She tried with crutches for a short distance
- And did well some how
- Then he prescribed her a foam walker

- He told her full weight bearing as tolerated
- In house you can walk bare footed if you can
- Outside use the foam walker
- And as you can proceed, proceed
- I asked him do we need additional weight bearing x-rays
- He said, no need as we did initially and it was fine

- We went home her edema subsided by the next day and she was walking with limbing on crutches
- With some minimal pain (according to my wife which is a tough and usually tolerant individual)
- We get the foam walker and a cane
- She tried the air cast initially but it was two heavy so we brought a small foam walker of a different design which was shorter and lighter

On 5/7/2014

- 3 days after removal of the cast she was walking better with limping and the aid of a cane only
- I was not convinced by the fact that there is no need to repeat the weight bearing x-rays
- I went to the doctor and asked him kindly to order weight bearing x-rays just to relieve me
- He said this will add nothing but since you are worried we will do it

- My insistence was because she was planning to go back to work, and as a cardiologist this will entail significant ambulation
- So my fear was ligaments needs 3 months to heal
- What if she puts stress then we will lose 6
 weeks of non healing and fall into trouble

Weight bearing xrays on 5/7/2014 3 days after cast removal and some ambulation

Note that the oblique images are non weight bearing because the technician said it is not feasible

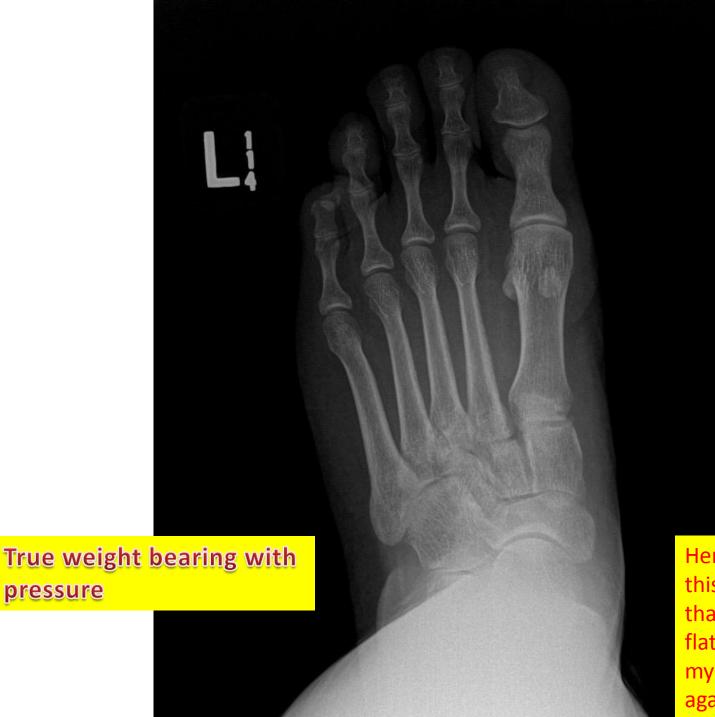




Non weight

bearing by

In this xray she was not weight bearing and it was taken by mistake so I asked the technician to repeat it



pressure

Here she was putting significant pressure and standing on the table

Here as I was preparing this presentation I noticed that the whole foot get flatter with pressure and my worries increased again is this normal



Oblique Non
weight bearing
because the xray
technicain said it
is not feasible



Oblique Non
weight bearing
because the xray
technicain said it
is not feasible



This is simulated weight bearing (sitting and pushing on the film) for technical reasons again because the machine does not allow true lateral weight bearing images and again the arch height when compared to right put some worries in my mind.



- Then the orthopedist checked the weight bearing xrays and again he said things are fine
- All joints are aligned as it was the initial weight bearing xrays 6 weeks ago
- He asked me not to worry and asked my wife to resume with weight bearing as tolerated
- He told me forget about lisfranc as this is his responsibility (the orthopedist) so I stopped asking because of embarrassment

- I went home, reviewed the x-rays by myself several times and was still worried for the following reasons.
 - Yes the joint lines of the 1st 3 metacarpals with their cuboids are fine
 - But I noticed there is 1.2 mm widining in excess between the first 2 metatarsal basis on the left when compared to right ???
 - I noticed decrease in the arch height ???
 - I noticed this widening in the whole foot ???



Is this red line true widining, when measured is 3.7 mm, and the other side is 2.4mm, The next day (yesterday) I asked another orthopedist (with spine surgery focus) and said this is not significant or true as he measured the blue line up and find difference and said this is rotational





I asked the same second orthopedist about arch height when compared to right he asked, is this true weight bearing, I said no, as she was sitting and pushing on the film, so he assured me again and told me if this injury reached the level of arch height loss you would see significant loss of line alignment on the ap and oblique views initially



Here I wanted to ask about the widening that happened in the whole foot (the last xray up) when she put weight and pressure, which I noticed initially, but when I made both L letters fit by overlapping the images (the mark fit on both images) things get different (as you see between the first two images),

so may be this was not widening, it was the xray technicain who manipulated the images before sending it and I saw it as widining, may be.

I am convincing my self.

- As I said yesterday I tried to question another two orthopedist other than the one who is managing her because I feel embarrassed, one with spine focus and another one with general experience.
- I told them to review all images, and asked about the fleck sign on CT the last findings on the WB images
- They told me do not worry you are on the right track
- They said yes the lisfranc ligament might have been affected but your wife is lucky that no dislocation occurred and 6 weeks non wb cast was the right management





This is the red line that all relied on this recent weight bearing AP view, the second image yellow line which they also showed to me on the oblique image is not to trust because this in non weight bearing oblique (the technician said it is not feasible). I asked about the alignment of the 4th MT-T joint violet arrow and they said it is not important and this is a fracture with good alignment any ways

- They said fleck sign means that bone was avulsed, and this will better heal than a truly ruptured ligament as bone heals faster and better
- They said the widening you assume is mostly related to the way the x-ray was taken and the rotation
- They said the arch height is also not to be considered as the joints are aligned and this might be rotational
- They said this was a high energy injury, if it was dislocated from the start you would have founded it on the CT initially, that is why your orthopedist was sure from the start and confident
- It is the low energy injuries that usually hide and are missed so stop worrying

- They told your wife finished her management (6 weeks non weight bearing), let her rehabilitate and forget about lisfranc
- I asked them do we need an MRI, does she need examination under anesthesia I am afraid
- They said no
- I added the literature say MRI is diagnostic
- One of them answered we know the ligament is affected some how and things are stable so what will it add, no need.
- What about exam under anesthesia, they answered she did weight bearing so no need

- They all said pain and limping in the coming 2 months is expected
- Nothing to worry about
- She will heal fully but be patient

- Please, help me, today is 1 week after cast removal, she is walking with limping without the cast
- I know that fractures will cause pain and the course of healing is long
- But again did we miss anything as initially the doctor said no lisfranc, the other doctors I asked yesterday they answered with an aaaa it could partial, a stretch, or non displaced stable lisfranc fx pattern ect...and the management is right
- Are we on the right track
- Is there anything additional we should do

- Now I am stuck between my worries and the ortho opinions here
- The problem is I do not feel confident
- Yes they are good ortho doctors
- But no podiatric doctor
- Please I need your answer as a true expert
- The missed lisfrancs whom I read about on the net are suffering
- I am very worried, I am willing to do anything to help my wife and avoid problems

- Please I need your opinion, I wish I can take an appointment and travel to you directly today before tomorrow but I am stuck
- The fact that I might be over exaggerating things is what stopping me
- I am willing for any requests you suggest and if major intervention is required I will travel and arrange everything ASAP
- Please help me with your kind opinion, as it is life determinant for me, my wife, and my son.

Thank You very very wery much