

Calcinosis of the Internal Jugular Vein: Interesting Presentation of Tertiary Hyperparathyroidism

Theodore Klug, MD; MPH¹, Mona Shete, MD²; Courtney B. Shires, MD, FACS³

¹ Thomas Jefferson University – Department of Otolaryngology Head and Neck Surgery, Philadelphia, PA, USA.

² Shete ENT, 5100 Sanderlin Ave #1200, Memphis, TN 38117

³ West Cancer Center, 7945 Wolf River Blvd, Germantown, TN 38104

ABSTRACT

Introduction

Tumoral calcinosis is a known entity following dialysis, with deposition throughout the hands and hips, joints, shoulders and fingertips. This is the first report of internal jugular vein (IJV) calcinosis to our knowledge.

Methods

A 49-year-old male with history of dialysis due to end-stage renal disease (ESRD) presented and reported pain in his left molars in early November of 2017. He was treated with antibiotics by the health department and was referred to a dentist. He then presented to a large municipal hospital on November 4, 2017, denying pain in his teeth but significant pain in his right jaw and throat. Computerized tomography (CT) was performed, revealing a large calcified lesion in the retropharyngeal area on the right side directly abutting the internal carotid artery. There was no evidence of dental abscess, retropharyngeal abscess, peritonsillar phlegmon, or fluid collection. Conservative observation was recommended. The patient did not present again until May of 2020. He complained of stridor upon presentation. CT of the neck with contrast was performed, showing an amorphous calcific soft tissue deposition mass lesion extending from the right posterior pharyngeal aspect to the thyroid lamina with saber-like narrowing of the upper hypopharyngeal airway (Figures 2, 3). The size of the calcified mass was noted to be significantly increased relative to what was shown in 2017.

Results

Local trauma, chronic inflammation, and vascular hypoxia have been proposed as potential mechanisms for tumoral calcinosis. For our patient, there was no history of trauma. However, we believe his history of dialysis was the underlying mechanism behind his calcinosis. Previous studies have also shown that reduced patient compliance regarding dialysis treatment contribute to the aggravation of calcinosis in ESRD.

Conclusions

The development of calcinosis in our patient is due to poor dialysis compliance. Still, we have no explanation for why the calcinosis occurred in the internal jugular vein, and nowhere else systemically. More research will be needed into this phenomenon.

BACKGROUND

Tumoral calcinosis is an uncommon but severe complication of hemodialysis therapy¹. The formation of tumoral calcification has been attributed to high calcium and phosphorus products after long-term dialysis¹. There are multiple case reports of tumoral calcinosis following dialysis, with deposition throughout the hands and hips¹, joints², shoulders and fingertips³, but never specifically in the internal jugular vein (IJV). This is the first case report we are aware of to this point.



Figure 1. Axial view CT soft tissue neck. A large calcified lesion in the retropharyngeal area on the right side directly abutting the internal carotid artery

CASE PRESENTATION

49-year-old male with history of dialysis due to end-stage renal disease (ESRD) that reported pain in his left molars in early November of 2017. He was treated with antibiotics by the health department and was referred to a dentist. The pain then shifted to the right-side molars. The patient also developed a sore throat on the right side. He then presented to a large municipal hospital on November 4, 2017, denying pain in his teeth but significant pain in his right jaw and throat. He denied fever and difficulty breathing at that time. Computerized tomography (CT) was performed, revealing a large calcified lesion in the retropharyngeal area on the right side directly abutting the internal carotid artery (Figure 1). There was no evidence of dental abscess, retropharyngeal abscess, peritonsillar phlegmon, or fluid collection. Conservative observation was recommended. The patient did not present again until May of 2020. He complained of stridor upon presentation. CT of the chest with contrast was performed on May 11, 2020, showing mild pulmonary edema. CT of the neck with contrast was also performed that day, showing an amorphous calcific soft tissue deposition mass lesion extending from the right posterior pharyngeal aspect to the thyroid lamina with saber-like narrowing of the upper hypopharyngeal airway (Figures 2, 3). The size of the calcified mass was noted to be significantly increased relative to what was shown in 2017. Given the appearance on CT of a densely calcified or ossified mass, favored etiologies included metabolic causes for calcification and idiopathic tumoral calcinosis. An x-ray modified barium swallow test was performed on May 12, showing aspiration. A magnetic resonance imaging (MRI) of the neck soft tissue only without contrast was also performed, showing a large, right-sided parapharyngeal mass extending laterally into the right-sided deep cervical soft tissues (Figure 4), corresponding with the large multilobulated calcified mass noted on recent CT (Figure 5).

The patient was admitted for stridor and increased difficulty with breathing. He was then transferred to the intensive care unit (ICU) following hypercapnia and a CO₂ narcosis. CBCs and BMPs were drawn and trended, with adjustments made to improve an initial parathyroid hormone (PTH) of 589.1. Calcium levels were between 9.2 and 10.2, while phosphorous levels remained normal throughout. Medicine, Otolaryngology, and Cardiothoracic Surgery were following the patient daily, until May 23, 2020, when an emergency tracheostomy had to be performed due to a compromised airway.

Past medical history for the patient includes ESRD, dialysis, thyroid disease, hemorrhoids, and hypertension. Past surgeries include abdominal surgery, colonoscopy, dialysis fistula creation, hernia repair, right AV graft ligation, and total thyroidectomy. The patient endorses alcohol use once or twice a month. No history of tobacco or drug use.

DISCUSSION/CONCLUSIONS

Local trauma, chronic inflammation, and vascular hypoxia have been proposed as potential pathomechanisms for tumoral calcinosis.⁴ Several therapies have been tried for calcinosis with variable results, but surgical excision of calcium deposits remains the primary method of treatment.⁴ For our patient, there was no history of trauma. However, we believe his history of dialysis was the underlying mechanism behind his calcinosis. Previous studies have also shown that reduced patient compliance regarding dialysis treatment contribute to the aggravation of calcinosis in ESRD.^{5,6} In turn, we postulate that the development of calcinosis in our patient is due to poor dialysis compliance. Still, we have no explanation for why the calcinosis occurred in the IJV, and nowhere else systemically. More research will be needed into this phenomenon.

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Figure 2. Coronal view CT with contrast neck. An amorphous calcific soft tissue deposition mass lesion



Figure 3. Axial view CT soft tissue. An amorphous calcific soft tissue deposition mass lesion

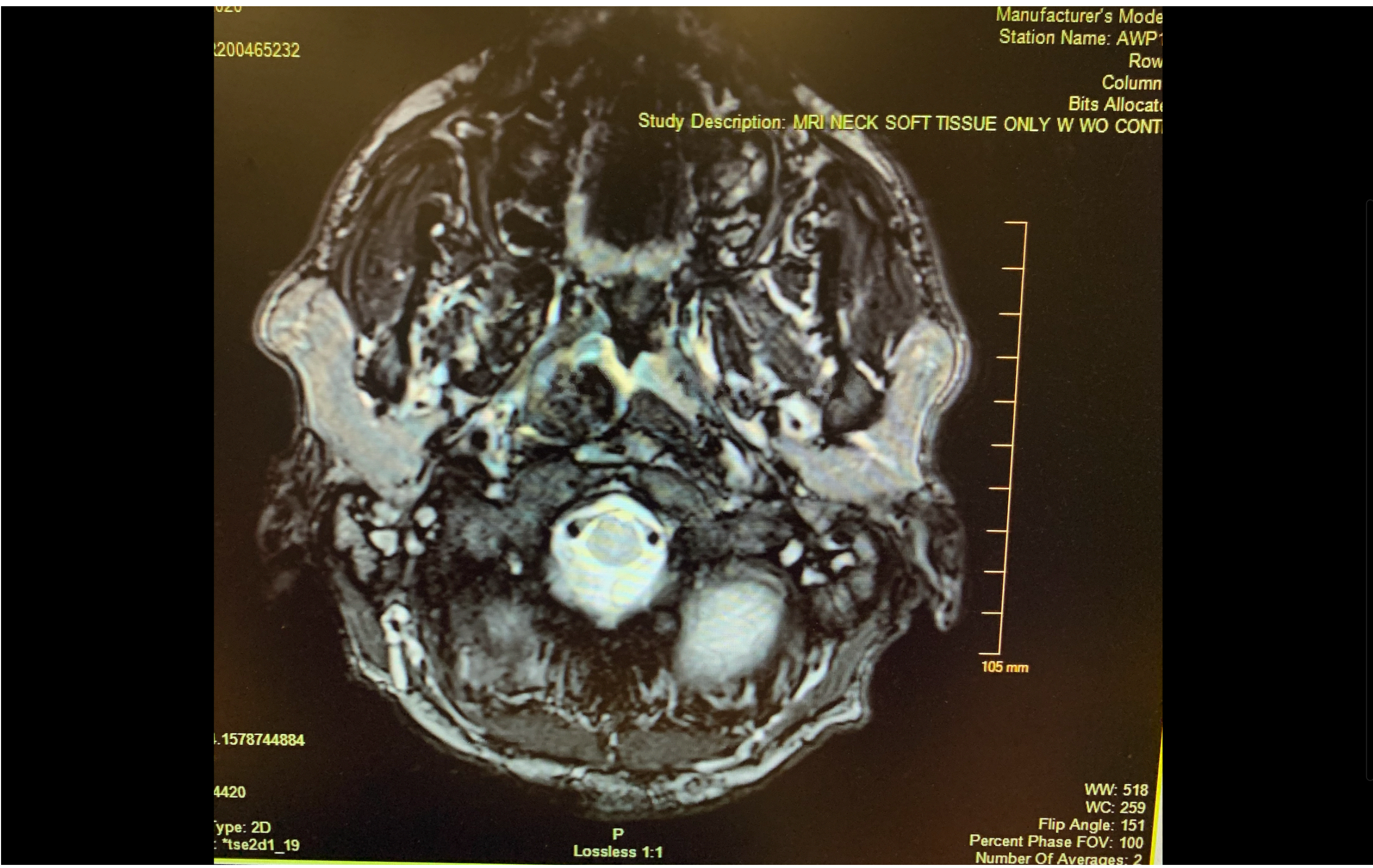


Figure 4. MRI soft tissue neck. Large, right-sided parapharyngeal mass

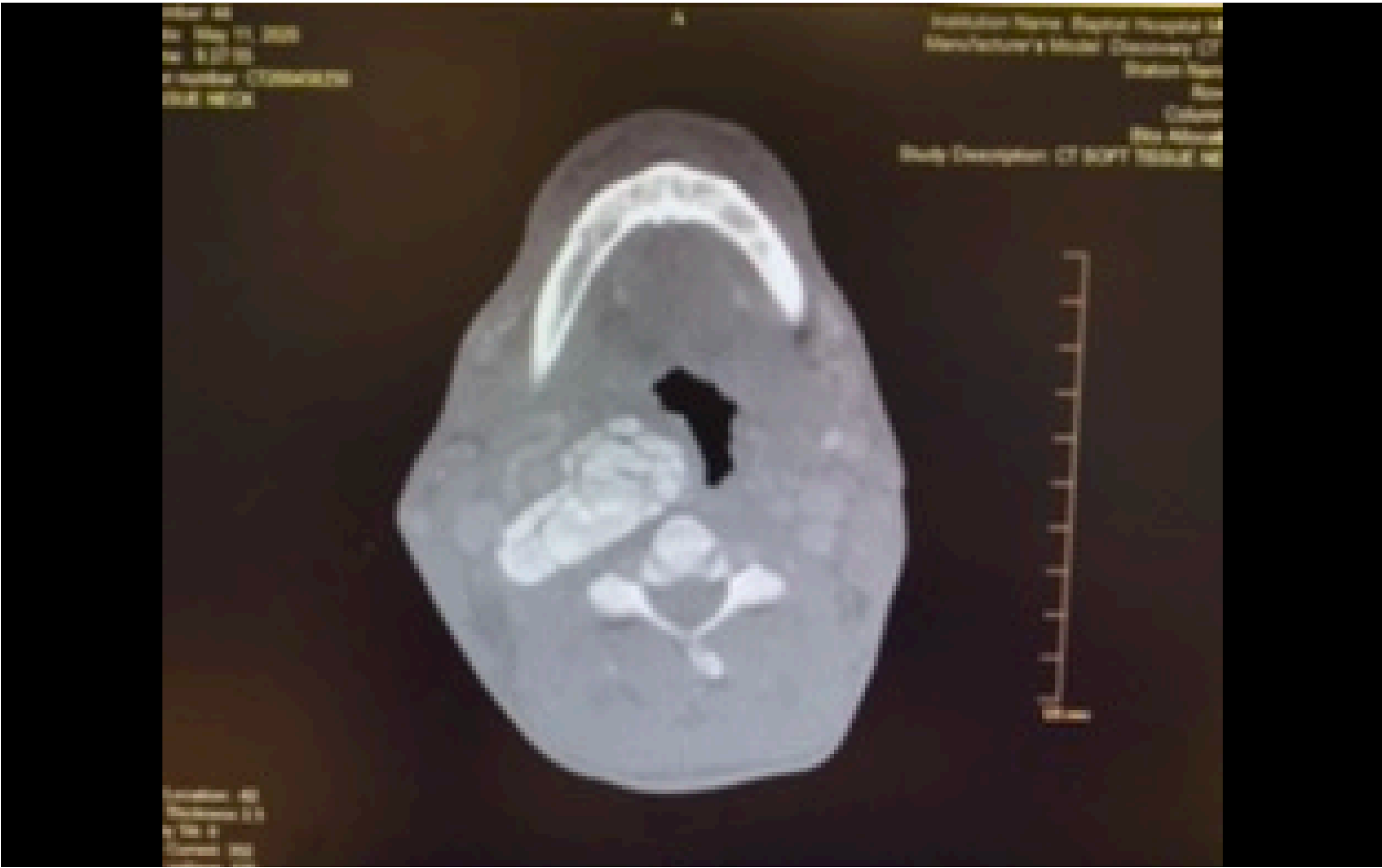


Figure 5. Axial view CT soft tissue neck. Large multilobulated calcified mass

