

HYPERCALCEMIA AND NEPHROCALCINOSIS INDUCED BY 'PUMP AND POSE' INTRAMUSCULAR INJECTION

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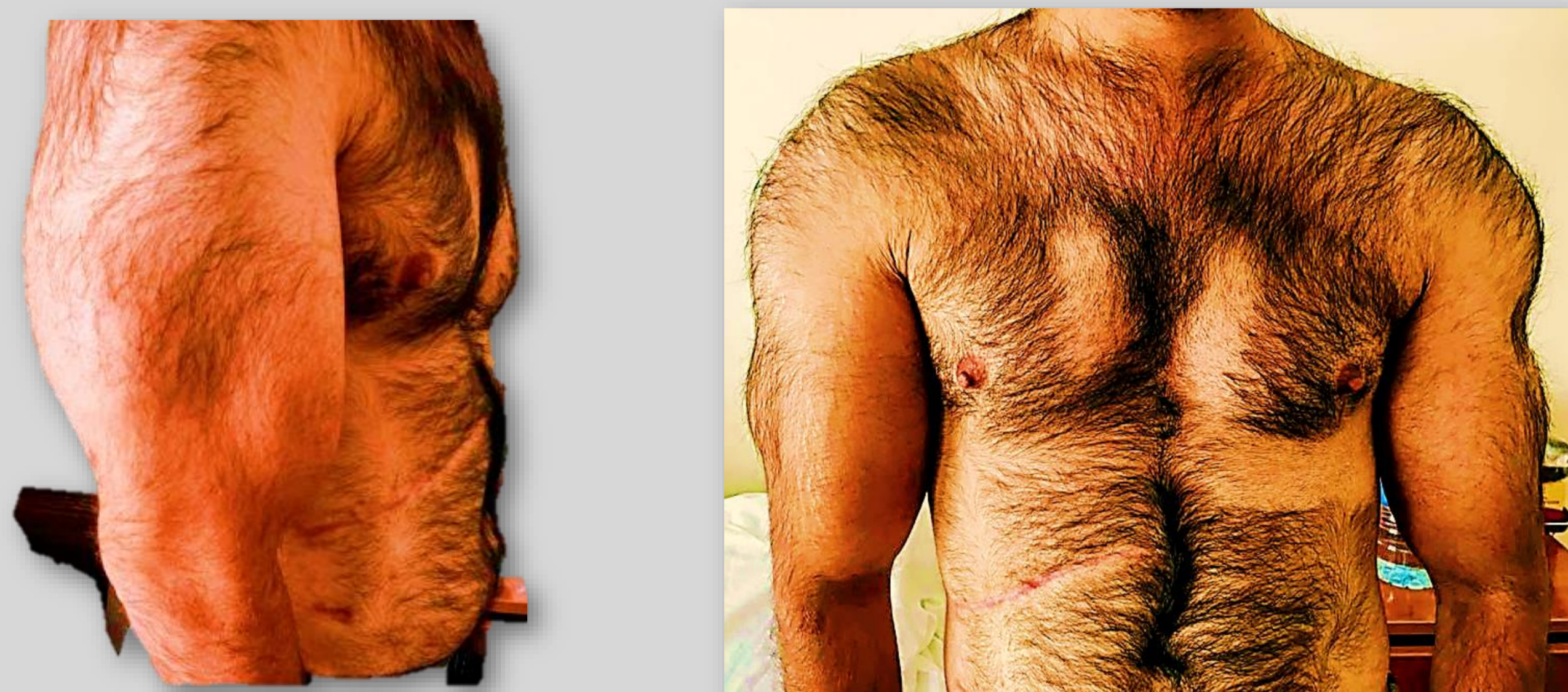
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Introduction

'Build your body, build your character'
'Good is not enough if better is possible'
'The worst thing you can be is average'

Site enhancement oils (SEO) injections were used to boost the cosmetic appearance of muscles. Synthol, one of the substances used for this purpose, is a chemically synthesized oil composed of 85% oil (medium-chain triglycerides), 7.5% lidocaine and 7.5% alcohol.

Following injection with synthol, the injected muscle undergoes immediate enlargement. This is why this substance is heavily used by bodybuilders.



SEO intramuscular injections were associated with severe adverse events in bodybuilders, only mentioned in some case reports;

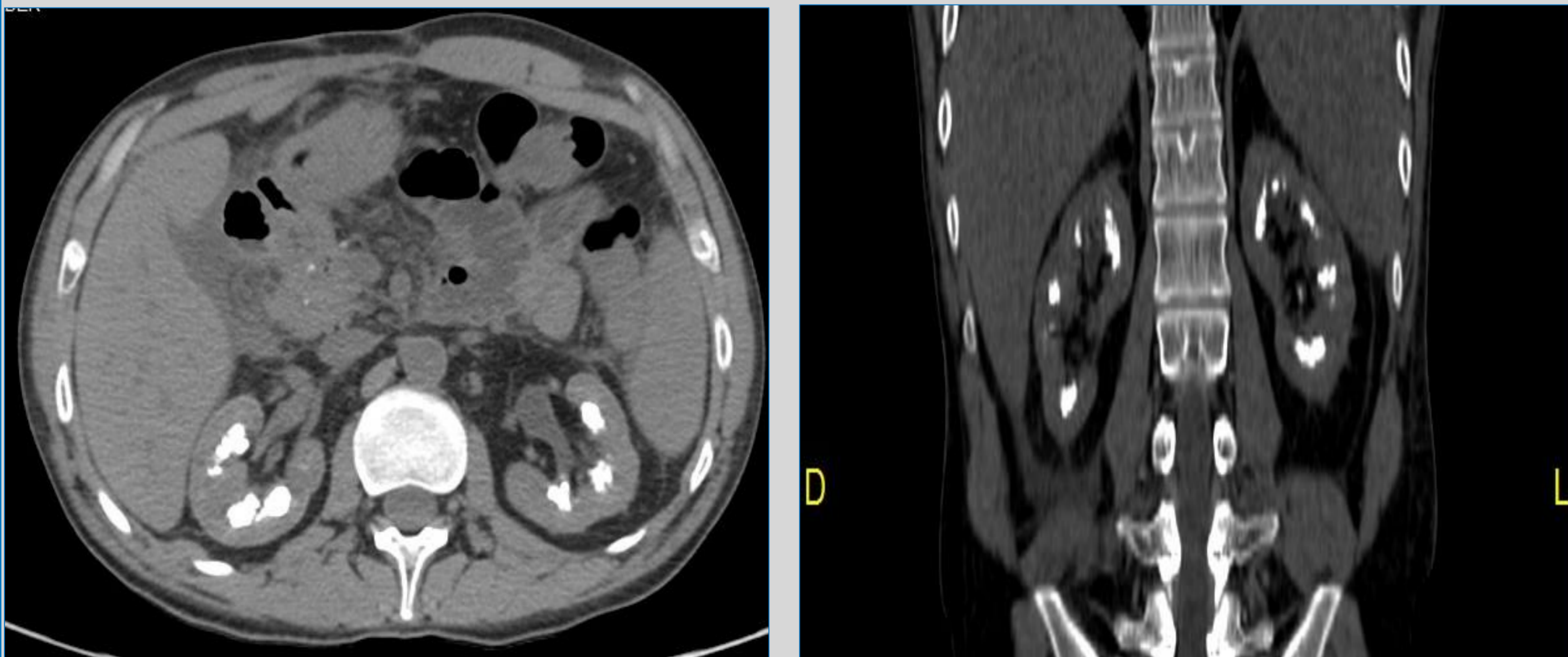
- Muscle deformity and severe muscular pain caused by muscle fibrosis
- Cerebral stroke
- Pulmonary emboli
- Cysts and wounds formation
- Infections leading in some cases to severe sepsis and death.

Renal involvement has not been reported in previous publications

Patient Description

This is a case of a thirty-year-old patient, who presented for an episode of acute pancreatitis complicated by a pseudocyst in the region of the head of the pancreas with an abscess drained endoscopically.

His past medical history was significant for hypertension, chronic kidney disease, chronic hypercalcemia with multiple repetitive episodes of nephrolithiasis, with bilateral double J catheter changed every 6 months ever since, along with multiple episodes of acute kidney injury, urinary tract infection and recurrent episodes of acute pancreatitis.



His medical problems began in 2007, after he injected repeatedly a synthol based product with paraffin (aka 'Pump and Pose') in his biceps, triceps and trapezius.

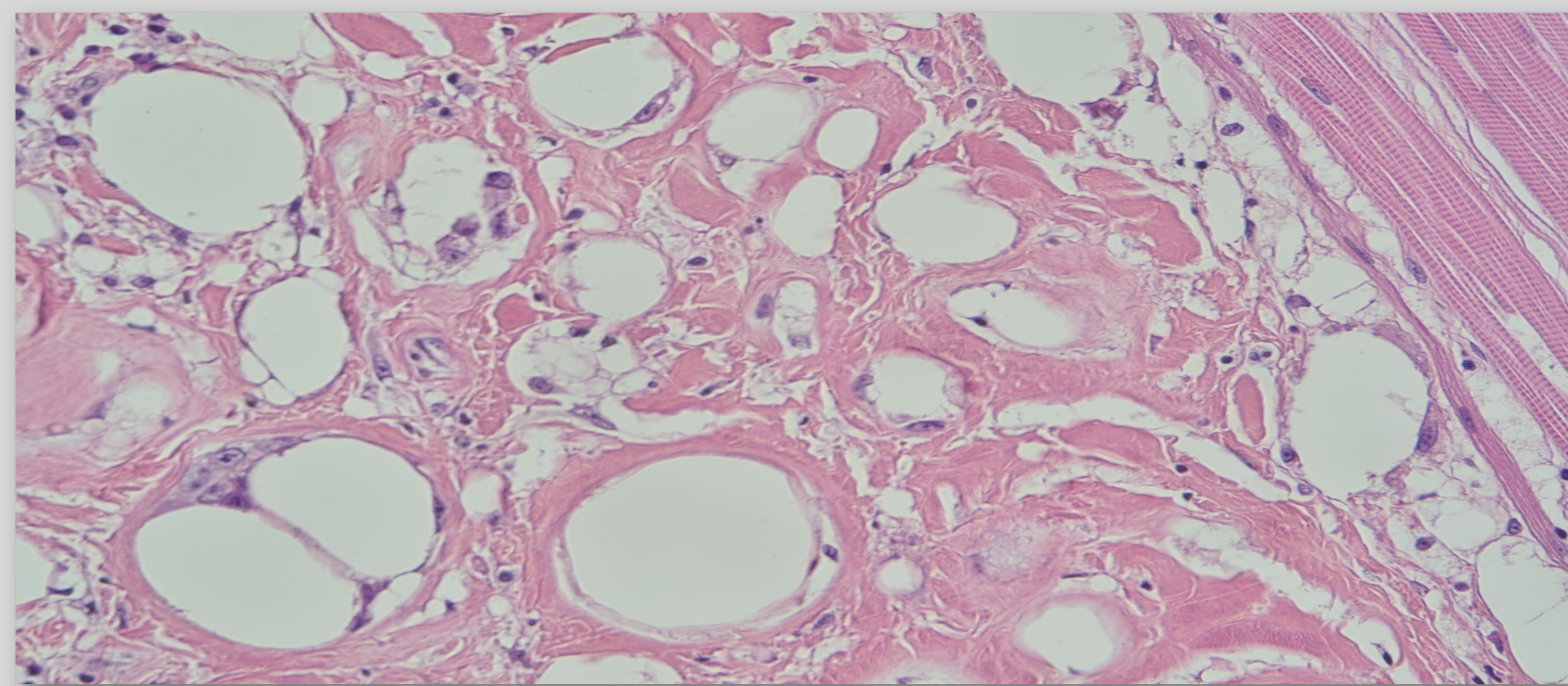
Management

Laboratory tests showed a **calcium level of 3,2 mg/dl**, PTH 4 ng/ml (Normal 6,3-36) and a 25(OH) vitamin D less than 4ng/ml, with a normal phosphorus level and a normal serum protein electrophoresis.

An MRI of the upper limbs was performed showing diffuse muscle fibrosis with amorphous material deposition. A muscular biopsy was performed revealing fibrosclerotic remodeling with the presence of an optically empty material of undetermined nature.

Our hypothesis to explain the hypercalcemia was a Vitamin D mediated condition caused by the presence of a granulomatous disease secondary to the intramuscular injections.

Oral steroids, prescribed earlier, were continued. A surgical resection of the bilateral biceps and triceps fibrosis was performed.



Resorptive granulomatous myositis with foreign body, evolving into fibrosis, with granulomatous reactions noted in some locations, surround by fibrosis and an atrophic residual striated muscle tissue.

The patient improved clinically, and the calcium level decreased, returning progressively to normal values over a few months.

Discussion

To our knowledge, this is the first case reported of the metabolic and renal adverse events caused by the intramuscular injections of a site enhancement oil. More over, this case describes the management of such a potential life-threatening condition, with successful treatment.

On the other hand, this case appraises the importance of the awareness of the potential damages caused by the use of such products.

Conclusion

Site enhancement oil intramuscular injections can cause granulomatous reactions and muscle fibrosis, resulting in a hypercalcemia with subsequent, nephrolithiasis, acute kidney injury and progression to chronic kidney disease.

This condition could be treated with corticosteroids and surgical resection of the granulomas and the fibrosed tissue.

Reference:

Ghandourah et al.: Painful muscle fibrosis following synthol injections in a bodybuilder: a case report; Journal of Medical Case Reports 2012, 6:248

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