

CASE REPORT

A usual cause of tumoural mass of the index finger

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SUMMARY

We present a case of an unusual appearance of a tumoural mass on the right index finger. A 52-year-old farmer was administered to our outpatient clinic due to a large tumoural mass in his right index finger. He has been reporting of the mass for 32 years. Upon examination there was a rubbery soft, fixed, painless tumoural mass on the right index finger, covering all proximal phalanx volar and dorsal causing no surface skin reaction. The entire mass was excised and sent for pathological examination. The pathological result was a fatty degenerated fibroma. This kind of tumour may easily be misinterpreted as a lipoma even radiologically. So it is believed that any surgeon should always be suspicious of the diagnosis of long-term masses of any kind.

BACKGROUND

An unremarkable tumoural mass of the fingers is a common case for any orthopaedic surgeon. Not all lipomatous masses originate as a common lipoma. Benign tumours in the hand may be classified using different anatomic parts. Glomus tumours, enchondromas (more than 90% of bone tumours seen in the hand),¹ giant cell tumour of the tendon sheath, schwannomas (less than 5% of all hand tumours),² ganglions (most common soft tissue tumours of the hand)³ and lipomas are the common ones with proximal phalanx location.

The fatty degeneration of other tumours can preclude original tumours, which the attending physicians are encouraged to be suspicious about.

CASE PRESENTATION

A 52-year-old farmer was admitted in our outpatient clinic due to a large tumoural mass in his right index finger. He has been reporting of the mass for 32 years. He had had a tip amputation of the same finger when he was 6, which had no relation with the onset of the tumour.

He did not have any chronic diseases, nor any familial history of genetic disorders. What he remembered was just a minor trauma he suffered when he was a soldier about 32 years ago.

Physical examination revealed a large tumour covering the proximal phalanx causing skin distension without any disruption of distal circulation that indicated the tumour was slow growing (figure 1). Palpation revealed a rubbery, soft, fixed, painless tumoural mass on the right index finger that covered all proximal phalanx volar and dorsal causing no surface skin reaction.

It was observed that such a mass limits flexion of the metacarpophalangeal and proximal interphalangeal joints. No neurovascular deficit was apparent.



Figure 1 Showing a soft tissue tumour covering the proximal phalanx, causing skin distension without any disruption of distal circulation.

INVESTIGATIONS

X-ray showed no osseous lesion and ultrasonographic findings were consistent with lipoma.

DIFFERENTIAL DIAGNOSIS

Any histological unit such as muscle, bone, vessel, nail, skin or soft tissue can develop benign lesions that may present as localised masses of the hand. Excluding cutaneous malignancy, 95% of tumours of the hand are benign.⁴

A tumour in a finger staying for a long time and causing no pain may easily be misinterpreted as a lipoma even radiologically. However other soft tissue tumours such as 'fibromas, nodular tenosynovitis, giant cell tumour of the tendon sheath, inclusion body fibromatosis, nodular fasciitis, palmar fibromatosis, benign fibrous histiocytoma' may also cause adipose degeneration like the most popular one in liver: steatohepatosis.

TREATMENT

We decided to make an excisional biopsy. Under axillary blockage and tourniquet use in the right arm, we performed volar Z approach of the proximal phalanx. The tumour protruded when the subcutaneous tissue was incised (figure 2). It was released from the surrounding tissues with careful blunt and incisive dissection, while protecting pulleys and neurovascular bundles. Some parts of the tumour were also seen over the metacarpophalangeal joint and that part was also removed by lengthening (figure 3). The entire mass was excised and sent for pathological examination (figure 4). The skin was closed primarily with some excision of the distended part because the tumour had acted like a tissue-distender.



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Figure 2 The tumour protruded when a volar Z approach was made.

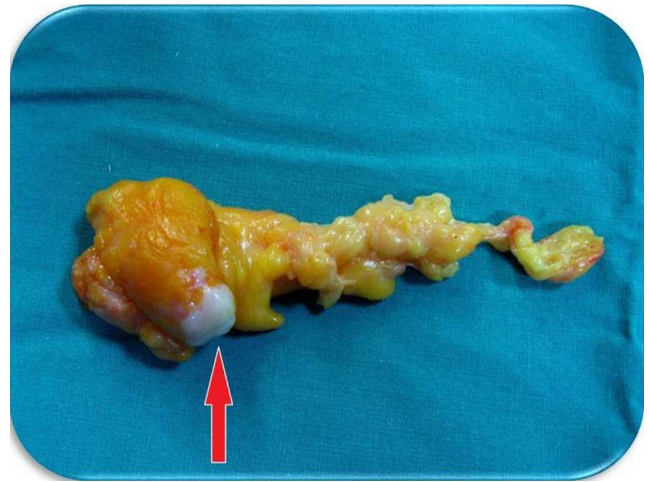


Figure 4 The entire mass, arrow: demonstrating fibroma.

OUTCOME AND FOLLOW-UP

The pathological result was a fatty degenerated fibroma (figure 5). Interestingly for years the fibroma stayed the same but the massive fat degenerated. The patient recovered without any complication and showed full range of finger flexion in the 12th month after surgery (figure 6).

DISCUSSION

Fibroma is a rubbery, soft, smooth-surfaced, well-bordered, nodular mass which seems uniform and white in appearance. Its size ranges from 0.5 to 5.5 cm.⁵ It is hardly a possible cause of a large mass in a finger like our case. Common benign fibroid tumours are classified as hard, soft or uterine. In some cases, the cells in a fibroid tumour can be malignant then the tumour is classified as a fibrosarcoma.

In 1923, Buxton⁶ first introduced fibroma in a classification of benign tumours of the tendon sheath. Tendon sheath fibromas mainly involve the places where tendons are crowded such as in the fingers, hands and wrists.⁷ Approximately 75–82% of fibromas can be found in these locations. The tumour usually presents as a slow-growing, hard, painless, tiny nodular mass in relationship with tendons and tendon sheaths. It may occur at any age, while the top incidence is between 20 and 50 years.⁸

Chung and Enzinger reported that the median age is 31 years. Male patients are more affected than females with a ratio of 1.5–3/1.⁵ The most common symptom in nearly all cases is a painless, slow -growing mass. Less than 10% of the patients

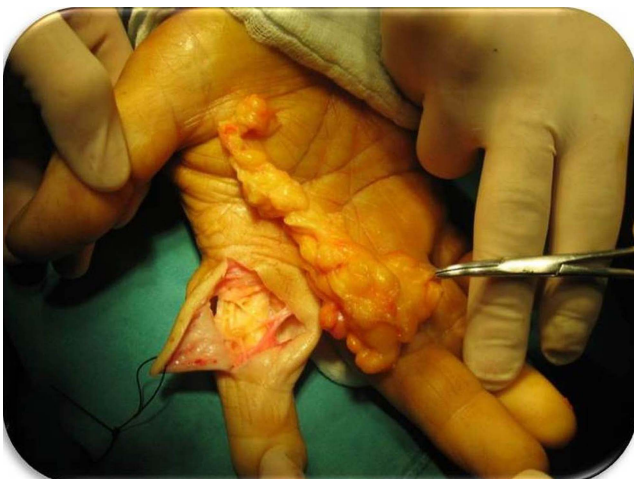


Figure 3 A large tumour covering the proximal phalanx and reaching the metacarpophalangeal joint was excised.

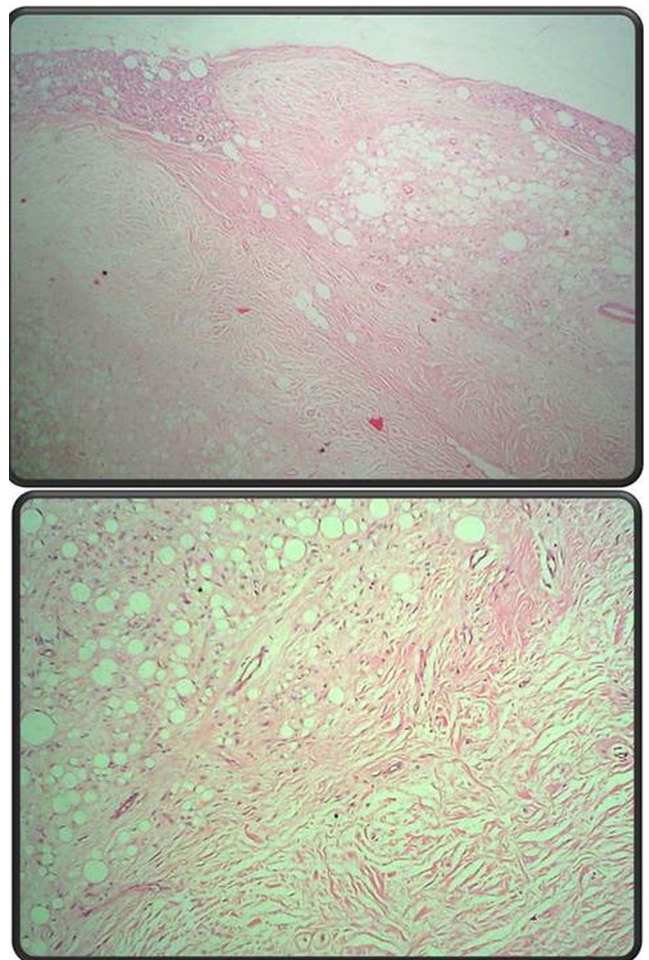


Figure 5 In the upper image, cellular fatty degenerated areas can be seen prominently on the peripheral side of the lesion (H&E x40). Below on the right-bottom classical histological view, while on the upper-left cellular fatty degeneration areas adjacent to the hypocellular areas (H&E x200).



Figure 6 The clinical view in the twelfth month postoperatively, showing full range of flexion.

present a history of trauma.⁹ It is not exactly known whether it is a reactive fibrosis or a neoplasm, but it is commonly known that it acts in a benign manner. Fibroma can be treated with surgical therapy; but a complete removal of the tumour is essential to prevent local recurrences. Regarding the injury type, tumoural cells may accumulate some amount of harmless, different substances, which may help differentiate the aetiology.¹⁰

The term ‘fatty degeneration’ means an abnormal accumulation of triglycerides inside the parenchymal cells. In such a condition the cells of tissues are affected and changes in the chemical composition of the contents of the cell happen; the albuminous constituents split up and yield fat.

This deposition of adipous globules inside the cells of any bodily organ, such as the heart or liver, results in damages of the marked tissue and so decreases the functions of the affected organ. Fatty degeneration may be caused by toxins, protein malnutrition, diabetes mellitus, obesity, anoxia or chronic irritation of any reason.¹⁰

Fat may be formed in the body either from carbohydrates or albuminous substances of the food. In the case of fatty degeneration the fat is derived from the albuminous constituents of the tissues which show the break up of constituents while leaving the fat in the tissue. The albuminous degradation is accompanied with serious alteration in their chemical constitution. The possible reasons of fatty degeneration may be due to morbid conditions of the blood or caused by local influence, which in turn depicts general and local fatty degeneration. In general in fatty degeneration, the blood is deficient in oxygen, but in the local form, the tissues are deprived of oxygen.¹¹

Fatty infiltration is different from fatty degeneration. It is also a pathological process caused by systemic or endocrine disorders, where many small fat droplets accumulate in the cells, but the cells are not primarily injured or damaged.¹² It is known that persistent irritation over a benign tumour may stimulate the defence mechanisms. A farmer would have more use of his hand even with a painless tumour. So overirritation of an innocent mass for years may result unexpectedly.

Although surgical interventions for both lipomas and fibromas are similar, recurrence rates may be different. Up to 24% of fibromas may recur months to years after treatment,¹³ whereas recurrence rate is about 5% for most lipomas, being mostly the result of incomplete removal.

This report may demonstrate what can happen with more than 30 years of local irritation to a benign condition. No case of amputation has been reported due to fibromas in the literature; however, amputation stump may be the reason for fibroma onset as reported by Kouwenberg and Frölke.¹⁴

Patient's perspective

Habitual behaviours like not using the affected finger, may continue for a particular time after definitive treatment.

Learning points

- ▶ Any surgeon should be aware of adipose degeneration of tumours.
- ▶ Fatty infiltration is a different concept from fatty degeneration.
- ▶ Fatty degeneration should be kept in mind for long-term masses of fingers.
- ▶ Overirritation on a tissue for a prolonged time may activate defence mechanisms that may alter the normally expected result.
- ▶ It is important to remember that in some occasions fatty degeneration can shadow original tumour.

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Competing interests None.

Patient consent Obtained.

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