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### Original article

## Endoscopic resection of subcutaneous lipoma and tumor-like lesion of the foot



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#### HIGHLIGHTS

- Endoscopic resection of benign soft tissue tumors may result in better cosmetic result.
- The boundary of the tumor and the interface of it with the adjacent normal tissue should be well defined for endoscopic soft tissue tumor resection.
- This should not be used for malignant conditions.

#### ARTICLE INFO

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#### ABSTRACT

Open resection is the standard surgical treatment for subcutaneous lipoma. However, it may result in cosmetically non-desirable scars in case of large lesion. Endoscopic resection of subcutaneous lipoma and tumor-like lesions may result in better cosmetic result and patient satisfaction. The basis of the endoscopic technique is described.

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#### 1. Introduction

Open excision is the standard form of surgical treatment for subcutaneous lipoma, but it may leave lengthy scar especially in large lesion [1,2]. With the advance in endoscopic surgery, endoscopic resection of soft tissue tumors and tumor-like lesions has been proposed [1–7]. Most of the reports are about lipoma of the forehead and cheek. The endoscopic surgery has come into favor because it has reduced postoperative pain, earlier mobilization and shorter hospitalization, decreased infection rate and better cosmetic result [1]. We describe the endoscopic technique of resection of the subcutaneous lipoma and tumor-like lesion of the foot. The similarity and difference of the technique and the existing technique for the facial lesions will be discussed.

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#### 2. Description of technique

A thigh tourniquet is applied to provide a bloodless surgical field. Positioning of the patient depends on the location of the lesion. Supine position is recommended for foot dorsum and medial foot lesions. The patient is put in prone position for plantar lesion and lateral position for lateral foot lesion. In general, two portals are sufficient for the procedures as they can be swabbed as instrumentation and visualization portals.

There are several considerations in designation of the portals:

A. The portals can be either intra-lesional or extra-lesional (Fig. 1). Intra-lesional portals are feasible in large lesion but the instruments can be crowded in small lesion. The intra-lesional portals have the advantage of inclusion of the portal incisions into the resection boundary if open en bloc resection if indicated. The extra-lesional portals have the advantage of less crowding effects of the instruments and the portals can be coaxial. In order to minimize the extent of the resection in case of open en bloc resection is indicated, the portals should be as close to the margin of the lesion as possible.

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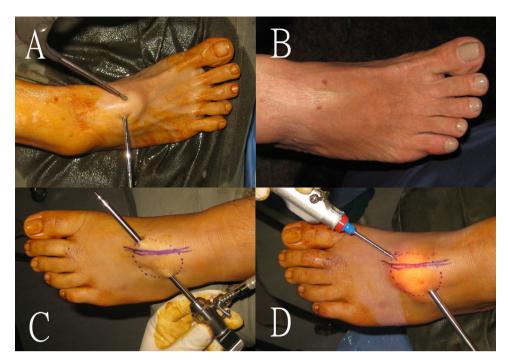


Fig. 1. (A) Resection of foot dorsum lipoma with intra-lesional portals. (B) The good cosmetic result after the resection. (C and D) Coaxial extra-lesional portals. Note that the portals for the foot dorsum lesions are not in line with the axis of the foot.

- B. The portals should be in line of any incision that may be used if an open tumor excision was needed later. Theoretically, the portals are best as parallel to the axis of the foot as possible. This would facilitate the inclusion of the portal incisions into the resection boundary if en bloc resection is indicated. Moreover, the portal tract would be parallel to the nerves and arteries and minimize the risk of neurovascular damage. However, the degree of freedom of instrumentation via the portals should also be considered. It is usually not feasible to have portals along the axis of the foot for dorsal lesions as the instrumentation via the
- proximal portal is obscured by the leg and ankle. It is feasible for lesions at the medial/lateral or the plantar lesions (Fig. 2).
- C. Another consideration of the portals for the plantar lesions is the avoidance of the pressure points in order to reduce the formation of painful plantar scar (Fig. 3).

After the portal incisions have been made, the initial portal tract is made intra-lesionally and as superficial as possible. The deep part of the lesion can be resected by turning the instruments toward the foot. Resection of the superficial portion of the lesion can be

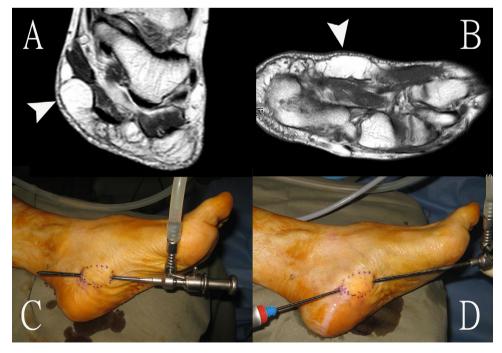


Fig. 2. (A and B) Arrow head pointing the lipoma at the medial side of the foot. (C and D) Endoscopic resection with coaxial extra-lesional portals along the axis of the foot.

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