

## Surgery

**KEYWORDS:** RIGHT ARM,  
Radial nerve and radial collateral  
artery involvement seen

## HARMONIC SCALPEL IN THE TREATMENT OF GIANT INTRAMUSCULAR NEURO-VASCULAR LIPOMA



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**ABSTRACT**

For the excision of lipoma, the length of the incision required is equal to or greater than the diameter of the giant intramuscular lipoma. However, excessive traction and thermal injury from the energy delivered by the device causes injury to the surrounding tissues and formation of long and noticeable scars formation and resulting in patient dissatisfaction. Now a days with the help of Ultrasonic Harmonic scalpel we can excise large and deep seated lipomas with minimal scarring. With the help of Ultrasonic scalpel, shorter incision can be given during surgery, and it provides a sufficient view of the surgical field, thereby avoiding unnecessary traction applied to the skin and reducing surrounding tissue injury, which avoids formation of hypertrophic scars.

**INTRODUCTION**

Lipomas are adipocytic tumors that can arise from any part of the body [1].

Giant intramuscular lipomas are deep-seated within the muscle [2], and are defined by a measurement greater than 10 cm in any dimension, reside deep to the fascia and originate within the muscular layer [3].

Most patients with a giant lipoma desire surgical excision for cosmetic reasons, and others want surgical resection because of pain secondary to compression [4,5].

Traditionally, for total excision of a deep and large intramuscular lipoma, a long surgical incision has been necessary which resulting in a long scar formation.

By shortening the incision it reduces the scar length To shorten the scar, some other methods have been suggested, including endoscopic-assisted liposuction, and endoscopic excision for removing moderate and large lipomas [8-10].

However, it is difficult to achieve complete removal of a lipoma and its entire capsule with these methods, and their high recurrence rate has been reported [11].

The present study suggests that using an Ultrasonic energy device ( Harmonic Scalpel ) minimizes the scar formation after excision of a giant intramuscular neuro-vascular lipoma. results in tissue injury around the incision margin due to traction, which may hinder the healing and lead to formation of hypertrophic scars [6,7]. CASE

**REPORT**

A 41 year-old female patient was admitted with a giant

intramuscular lipoma located in her anterolateral aspect of middle 1/3rd of right arm. (Fig. 1) which was movable, painless and diffusible margin with slip sign positive and gradually increase in size since last year.

All her laboratory investigations were normal.

ULTRASOUND RIGHT ARM shows a well defined spindle shaped intramuscular lesion is seen in lower 1/3 rd of the right arm in anterior aspect. The lesion measures 04 x 05 x 11 cm in size.

**Impression** – Suggestive of Possibility of Neurogenic Tumour.

Histopathology Report shows sheet of mature adipocytes arranged in lobules separated by intervening fibres septa along with few congested thin walled small blood vessels.

**Impression** – Histopathological features are consistent with Lipoma.

The patient desired complete removal of the Neuro-vascular lipoma for diagnostic and cosmetic purposes (Fig. 1).

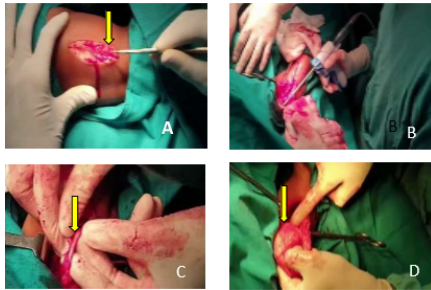


**Fig. 1. A pre-operative clinical photo showing a huge mass on anterolateral aspect of middle 1/3rd of right arm.**

With the patient under brachial anesthesia, surgical excision was performed

- 1) The patient was taken in operation theatre and anti-septic painting and draping was done.
- 2) The skin incision of about 5 cm is made on the most prominent part of lipoma on right side of arm and the area explored.
- 3) Radial nerve and radial collateral artery were attached to the lipoma and lipoma was arising from the lateral intermuscular septum located in muscle plane between brachioradialis and triceps muscle.
- 4) Perforating vessels were divided by harmonic scalpel and radial nerve and radial collateral artery were preserved by sharp and blunt dissection.
- 5) Feeding vessel is divided by harmonic scalpel.
- 6) Haemostasis achieved.
- 7) Lipoma was removed and tissue sent for histopathology.

- 8) Wound closed in layers.
- 9) Dressing done under all aseptic precautions.
- 10) The entire operation took 40 minutes. The Ultrasonic Harmonic Scalpel simultaneously accomplished hemostasis and dissection, and although the operation time was reduced.
- 11) No perioperative complications were noted.
- 12) Postoperatively, the patient was esthetically satisfied with the 5 cm-long scar.



**Fig. 3.** Compared to the size of the lipoma, a relatively-short 5-cm sized skin incision was made (A). Dissection of the intramuscular lipoma with the Harmonic scalpel (B). Radial nerve and radial collateral artery involvement seen (C). Lipoma was detached from between brachioradialis and triceps muscle (D) and size was measured as 04x05 x 11 cm.



## DISCUSSION

Lipomas are adipocytic tumors that can arise from any part of the body [1]. Giant intramuscular lipomas are deep-seated lipomas that measure greater than 10 cm in any dimension [3], and an extended incision length may be necessary to achieve complete resection of the lipoma and its entire capsule.

In this report, an Ultrasonic Harmonic scalpel was used to ensure full visualization of the operation field and easily remove a 04 x 05 x 11 cm giant intramuscular neurovascular lipoma with a minimal incision and scar formation.

In the traditional excision procedure, utilizing a small incision to shorten the postoperative scar requires a high traction force to obtain the appropriate visual field, as a result, tissue and incision margin injury might occur, leading to poor wound healing or hypertrophic scar formation [6,7]. In contrast, the ultrasonic harmonic scalpel is a surgical instrument frequently used in laparoscopic surgery that provides an appropriate field of view for the operation with small incisions and without the requirement of a strong force of traction. Minimizing mechanical forces in the wound environment improves wound healing and reduces scar formation [6]. The ultrasonic harmonic scalpel can simultaneously perform cutting and cauterization. Thus, it can be used to perform a meticulous operation and to shorten the operation time. Moreover, the lateral thermal spread of the harmonic scalpel is minimal, so it may be helpful for minimizing thermal damage around the tissue [12].

Moreover, using the harmonic scalpel reduces the occurrence of seroma, because the ultrasound energy of the device prevents the opening through which serous discharge occurs. However,

dissection with this energy-delivering device in a narrow field is predicated on sufficient anatomical knowledge. By ensuring a thorough understanding of the blood vessels and nerves to be dissected in the region of the lipoma, intraoperative bleeding can be minimized and the sequelae after surgery can be reduced. Various surgical techniques that improve esthetic outcomes by shortening scar length have been reported, including suction-assisted surgical excision, endoscopic-assisted liposuction, and endoscopic excision for removing moderate and large lipomas [8,9,10].

Liposuction is one of the most helpful options for removing large, diffuse-spreading, and ill-defined suprafascial lipomas [13].

The advantages of liposuction include smaller scars, less pain, cost-effectiveness, reduced operative time, lower complication rates, and a better final contour [11]. However, the lipoma tissue is fragmented in the process of liposuction, and it is difficult to perform an accurate pathological analysis. Therefore, a preoperative fine needle aspiration biopsy or magnetic resonance imaging should be considered in patients with a questionable mass [14]. Moreover, a higher recurrence risk due to tissue fragmentation has been reported [11,15]. Compared with the previously reported methods, the ultrasonic harmonic scalpel has a lower recurrence rate and has the advantage of permitting lipoma excision en bloc, even in large and deep-seated lipomas, so that pathologic specimens can be precisely analyzed.

## REFERENCES

- Courtney M. Townsend, Daniel Beauchamp R, Mark Evers B, Kenneth L, Mattox Sabiston Textbook of Surgery, Elsevier, 20th ed., 2017;Pg. 762.
- McTigue S, Chernev I. Intramuscular lipoma: a review of the literature. *Orthop Rev (Pavia)* 2014;6:5618.
- Sanchez MR, Golomb FM, Moy JA, et al. Giant lipoma: case report and review of the literature. *J Am Acad Dermatol* 1993;28(2 Pt 1):2668.
- Warner JJ, Madsen N, Gerber C. Intramuscular lipoma of the deltoid causing shoulder pain: report of two cases. *Clin Orthop Relat Res* 1990;(253):110-2.
- Gutknecht DR. Painful intramuscular lipoma of the thigh. *South Med J* 2004;97:1121-2.
- Barnes LA, Marshall CD, Leavitt T, et al. Mechanical forces in cutaneous wound healing: emerging therapies to minimize scar formation. *Adv Wound Care (New Rochelle)* 2018;7:47-56.
- Bush JA, McGrouther DA, Young VL, et al. Recommendations on clinical proof of efficacy for potential scar prevention and reduction therapies. *Wound Repair Regen* 2011;19 Suppl 1:s32-7.
- Sakai Y, Okazaki M, Kobayashi S, et al. Endoscopic excision of large capsulated lipomas. *Br J Plast Surg* 1996;49:228-32.
- Al-basti HA, El-Khatib HA. The use of suction-assisted surgical extraction of moderate and large lipomas: long-term follow-up. *Aesthetic Plast Surg* 2002;26:114-7.
- Sawaizumi M, Maruyama Y, Onishi K, et al. Endoscopic extraction of lipomas using an ultrasonic suction scalpel. *Ann Plast Surg* 1996;36:124-8.
- Coleman WP 3rd. Noncosmetic applications of liposuction. *J Dermatol Surg Oncol* 1988;14:1085-90.
- Peev I, Spasevska L, Mirchevska E, et al. Liposuction assisted lipoma removal - option or alternative? *Open Access Maced J Med Sci* 2017;5:766-70.
- Dalal KM, Antonescu CR, Singer S. Diagnosis and management of lipomatous tumors. *J Surg Oncol* 2008;97:298-313. Wilhelmi BJ, Blackwell SJ, Mancoll JS, et al. Another indication for liposuction: small facial lipomas. *Plast Reconstr Surg* 1999;103:1864-7.