

Case Report

Spindle cell lipoma of the wrist, occurring in a distinctly rare location: a case report with review of literature

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Abstract: Spindle cell lipoma (SCL) is a rare, benign adipocytic tumor commonly arising in the upper neck, back, and shoulder regions. To the best of our knowledge, only one case of SCL of the wrist has previously been reported. We herein report a rare case of SCL arising at the wrist. A 77-year-old man presented with a 4-year history of a mass in the right wrist. Radiography showed no significant findings, and magnetic resonance imaging demonstrated the presence of a mass on the radial dorsal side of the right wrist. Needle biopsy suggested the tumor was SCL, and total excision was performed. Macroscopically, the tumor was circumscribed by fibrous membrane with a yellowish to partly white surface. Histologically, the tumor was composed of mature adipocytes and proliferation of the less atypical spindle cells in a ropey-like collagen background. Immunohistochemically, the tumor cells showed diffuse and strong expression for CD34. The final diagnosis of SCL was made on the basis of these pathological and radiological findings. The patient was successfully treated and shows no evidence of disease at 3 months after surgery.

Keywords: Spindle cell lipoma, wrist

Introduction

Spindle cell lipoma (SCL) is a benign adipocytic tumor first described in 1975 [1, 2]. According to the recent edition of the World Health Organization (WHO) Classification of Tumours of Soft Tissue and Bone, lipomas are categorized into 11 types [3]. SCL is rare, accounting for approximately 1.5% of all lipomas [4]. Histologically, SCL is classically composed of mature fat cells, bland spindle cells with low mitotic activity, ropey-like collagen, and myxoid matrix. By immunohistochemistry, spindle cell positivity for CD34 has been used as a diagnostic marker for SCL [5, 6]. However, despite these pathological characteristics, a definite diagnosis is sometimes difficult because of tumor variants with proliferation of spindle cells and scant adipocytes [6]. Differential diagnosis is important for tumors that share histological features with SCL such as well-differentiated sclerosing liposarcoma (WSLS) and spindle cell liposarcoma (SCLS) [7, 8]. In contrast to well-differentiated liposarcoma that occurs in various locations, SCL mainly occurs in subcutaneous

regions of the upper back, neck, or shoulder, and occurrence in other sites is uncommon [1, 3]. Previous reports document SCL arising in rare sites such as the face, forehead, upper arm, and thigh [2, 4, 5]. However, there are only a few reports of SCL of the wrist and hand. To the best of our knowledge, only one case of SCL of the wrist has been presented in the literature [5]. We herein report a distinctly rare case of SCL arising in the right wrist that was treated with complete excision.

Case report

A 77-year-old man presented with a 4-year history of a mass of the right wrist that did not cause pain and had grown gradually during semiannual observation. Physical examination revealed a soft mass (5 × 4 cm) with good mobility (**Figure 1A**). The patient did not have motor or sensory disturbance. Although radiography showed no significant findings, magnetic resonance imaging (MRI) demonstrated the presence of a mass on the radial and dorsal side of the right wrist with low intensity on

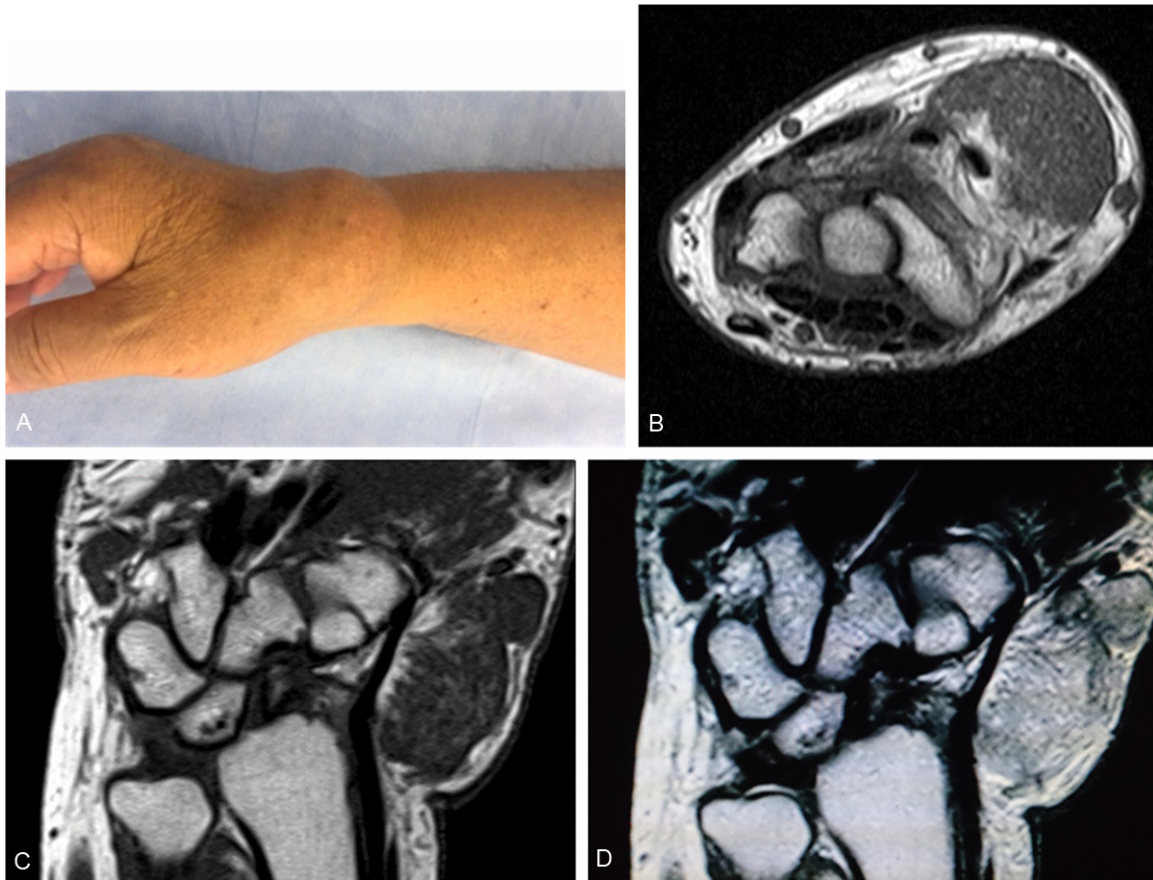


Figure 1. (A) The tumor located at the dorsal site of the right wrist (5 × 4 cm). (B-D) Magnetic resonance images showing the presence of the tumor at the radial side of the right wrist with low intensity on T1-weighted axial (B) and coronal (C) view, and heterogeneously high intensity on T2-weighted coronal view (D).

T1-weighted images and heterogeneously high intensity on T2-weighted images (**Figure 1B-D**). Needle biopsy was performed, and pathological features showed a proliferation of fat cells and spindle-shaped cells with ropey collagen. The tumor was histologically diagnosed as SCL; subsequently, total excision was performed. Macroscopically, the surgical specimen measured 4.3 × 3.2 × 2.6 cm and was circumscribed by fibrous membrane with a yellowish to partly white cut surface (**Figure 2A, 2B**). Histologically, the tumor was entirely composed of mature adipocytes and ropey collagen bundles containing spindle cells without atypical nuclei (**Figure 3A, 3B**). By immunohistochemistry, the tumor cells were diffusely positive for CD34 (**Figure 3C**), weakly positive for bcl-2, and the MIB-1 label index was less than 1% (**Figure 3D**). The final diagnosis of SCL was made on the basis of these pathological and radiological findings. The patient shows no evidence of local recurrence 3 months after surgery.

Discussion

SCLs are rare lipomatous tumors first described in 1975 by Enzinger and Harvey [1, 2]. According to the recent WHO classification, they are commonly subcutaneous, solitary neoplasms presenting in middle-aged men [3]. SCLs arise mostly in the posterior upper trunk such as posterior neck, upper back, and shoulders, and rarely in regions such as the face, forehead, upper and lower arm, and lower thigh according to the English literature [2, 4, 5, 9]. However, SCLs of the wrist and hand are extremely rare. To the best of our knowledge, only one case is documented for each [5, 10]. **Table 1** summarizes all known cases of SCL arising in the hand and wrist. Unfortunately, the previous report for SCL of the wrist included little clinical information [5]. All cases presented with swelling only.

Radiologically, MRI was effective for identifying tumor location and characterizing tumor inva-

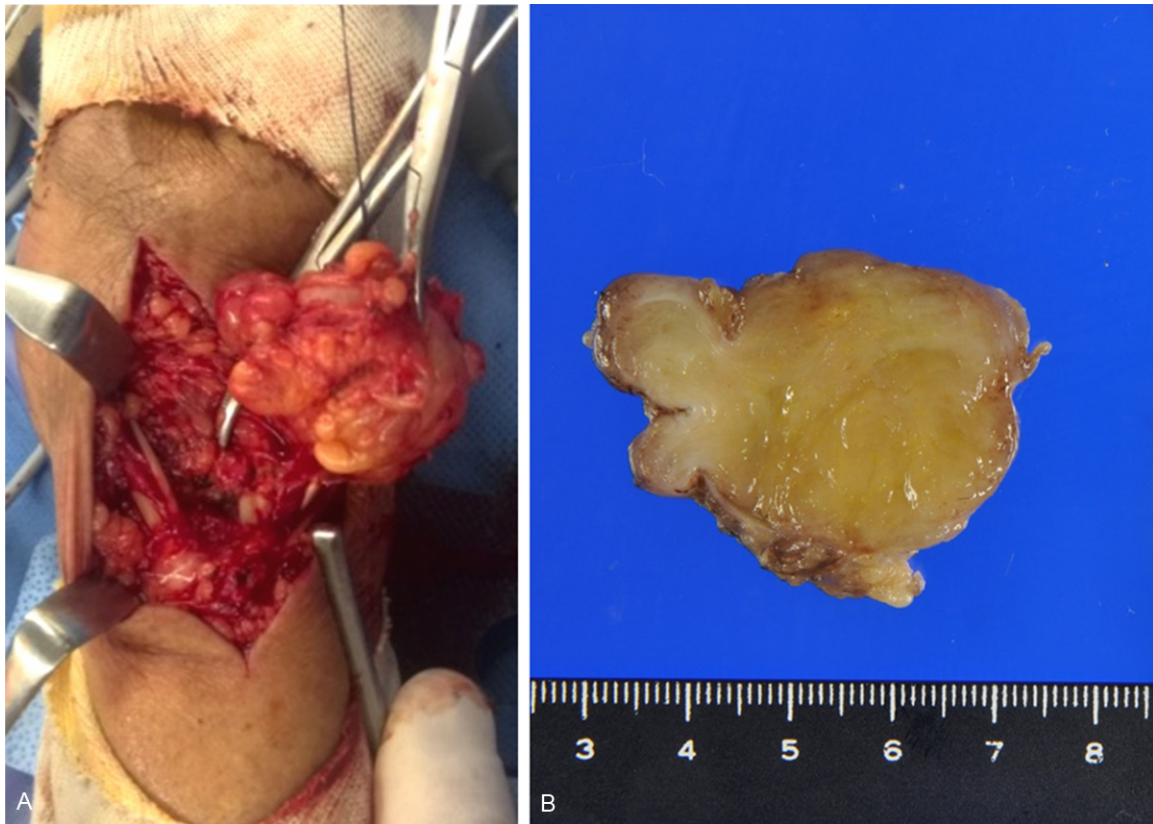


Figure 2. During the surgery, it was noted that the lobulated tumor was encapsulated without adhesion to the surrounding soft tissue. The tumor size was $4.3 \times 3.2 \times 2.6$ cm (A). The cut surface of the resected tumor shows a yellow component divided by a white septal wall (B).

sion. However, in tumors that consist of low-fat or fat-free components, SCL can be difficult to diagnose using MRI [11, 12]. Khashper et al. reported that fat-free components of SCL with isointensity to muscle on T1-weighted images and heterogeneously variable intensity to fat on T2-weighted images resembled those of other soft-tissue tumors such as schwannomas, neurofibromas, and liposarcomas. In our case, MRI showed low intensity on T1-weighted images and heterogeneously high intensity on T2-weighted images, which are not typically characteristic of lipomatous tumors. Because the wrist is an uncommon location for SCL, radiologists are not likely to consider SCL as a differential diagnosis for this tumor. Fibrolipomatous hamartoma of the nerve is another possible radiological diagnosis for the mass, although it rarely arises from the radial side of the wrist [13, 14]. In one report, 9 out of 26 patients with fibrolipomatous hamartoma had neurologic symptoms of pain or paresthesias [13]. However, the current patient did not have any neurologic symptoms.

Among the histological mimics for SCL, liposarcoma, especially WSLS and SCLS variants, is an important differential diagnosis. According to the WHO classification, well-differentiated liposarcoma is divided into 3 subtypes: lipoma-like, sclerosing, and inflammatory [3]. Among liposarcoma subtypes, WSLS is second in frequency to the lipoma-like subtype and is histologically characterized by dense stromal fibrosis with scattered bizarre cells and proliferation of mature adipose tissue with lipoblasts at various levels [8, 15]. Similarly, SCL consists of mature fat cells and spindle shaped cells with collagen matrix. Lipoblasts and floret cells are commonly absent in SCL. Immunohistochemically, CD34 expression is diffuse and strong in SCL [5, 6], while weak or absent in WSLS.

SCLS must also be differentiated. SCLS was previously categorized as a well-differentiated liposarcoma [16] but was excluded from the category of well-differentiated liposarcoma in the recent WHO classification [3]. SCL and SCLS share similar immunohistochemical and

Spindle cell lipoma of the wrist

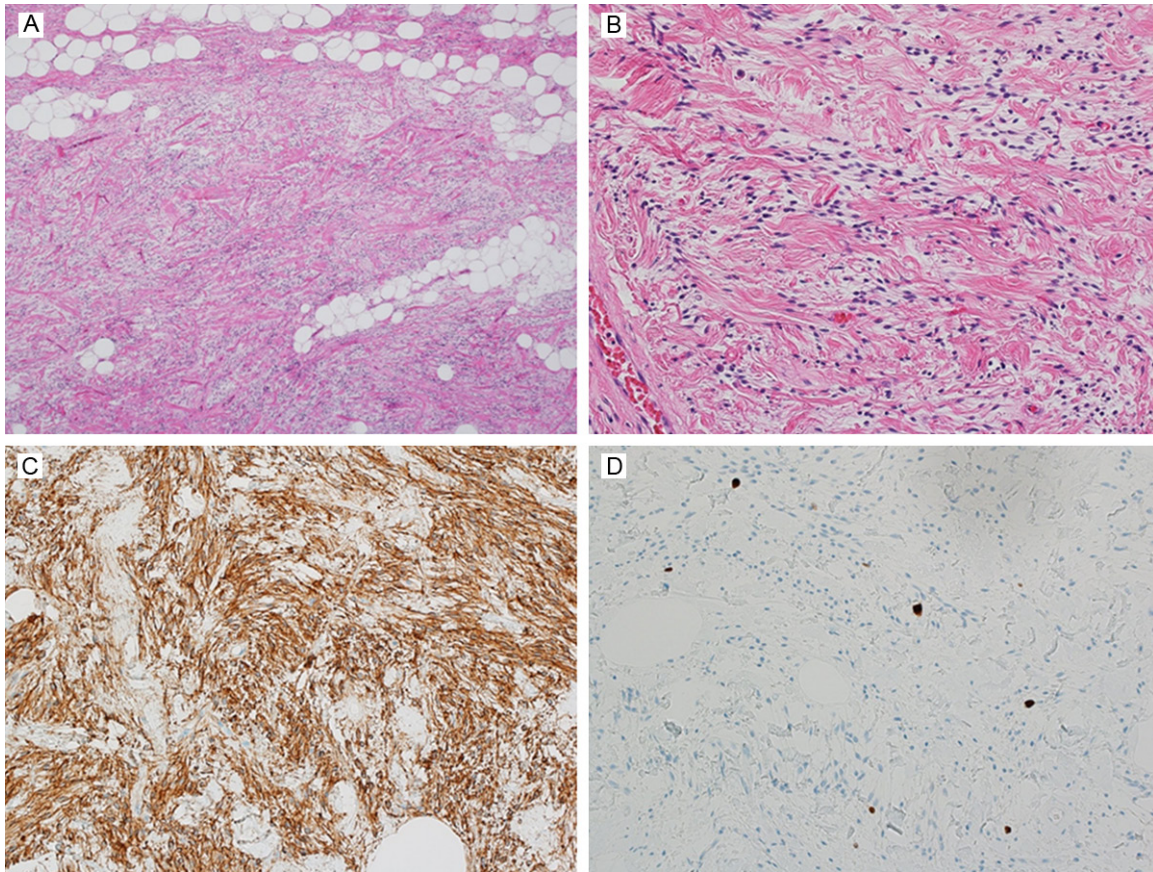


Figure 3. (A, B) Histologically, the tumor was composed of mature adipocytes and proliferation of the less atypical spindle cells in a ropey-like collagen background. Original magnification: $\times 40$ (A) and $\times 200$ (B). The tumor cells were diffusely positive for CD34 (C) and the MIB-1 label index was less than 1% (D).

Table 1. Reported cases of spindle cell lipoma at the wrist and hand

No	Author	Age	Sex	Location	aspect	Size (cm)	Treatment	Outcome
1	Templeton et al. [5]	40	M	Wrist	-	2.4	-	-
2	Varatharaj et al. [10]	34	F	Palm	volar	4.0	resection	NED/12mos
3	Present case	77	M	Wrist	dorsal	4.2	resection	NED/3mos

molecular genetic characteristics. In one study examining 18 SCLs, all tumors were found to lack *Rb-1* expression [17]. In another study, all SCLs examined showed *Rb-1* deletion and at least focal CD34 expression [18]. However, no SCLs showed amplification of *MDM2* and/or *CDK4*, which is characteristic of well-differentiated liposarcoma, establishing SCLS as an atypical counterpart of SCL rather than including it in the category of well-differentiated liposarcoma [18].

Because of similarities between SCL and SCLS, differential diagnosis should be made carefully. Histologically, SCLS contains atypical spindle cells with enlarged nuclei, a variable amount of

atypical adipocytes, and vacuolated lipoblasts [18]. The present case did not contain atypical cells with enlarged and pleomorphic nuclei, and lipoblasts were not seen throughout the tumor. These findings led us to the final diagnosis of SCL.

In summary, we identified a case of SCL of the wrist. This location is extremely rare for SCL, representing only the second case of SCL arising at the wrist.

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Disclosure of conflict of interest

None.

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