Original Article
http://mjiri.iums.ac.ir
Medical Journal of the Islamic Republic of Iran (MJIRI)

Med J Islam Repub Iran. 2026 (18 Feb);40.17. https://doi.org/10.47176/mjiri.40.17

Elastofibroma Dorsi: Demographic, Clinical, and Radiological Assessment: A Retrospective Study

Kaveh Samimi[1], Peyman Kamali Hakim[2], Fahimeh Zeinalkhani[2], Hadise Zeinalkhani[3], Mohammad Ghaffari[2]*, Nasrin Ahmadinejad[2,4], Hirbod Nasiri Bonaki[5], Sina Delazar[2], Hamid Rajabi[4]

Received: 31 Jul 2025 Accepted: 1 Feb 2026 Published: 18 Feb 2026

Abstract

Background: Elastofibroma dorsi (ED) is a rare, slow-growing benign soft tissue mass that typically develops beneath the scapula. It often remains asymptomatic and is incidentally discovered during imaging conducted for other reasons. When symptoms do manifest, they are generally mild and associated with shoulder movement. Due to the potential for ED to mimic more serious conditions on imaging, it is crucial to recognize its characteristic features. This study aimed to evaluate the demographic, clinical, and imaging characteristics of ED in a cohort of patients.

Methods: This retrospective observational study was conducted using imaging and clinical records archived at a single radiology center. Data were collected from two distinct periods (2013–2016 and 2022–2024) to enhance the study's statistical power and achieve a larger sample size. Scans were included if both the scapular and axillary regions were clearly visible and if complete clinical data were available. Patients with poor image quality, incomplete records, or a history of scapular surgery or malignancy were excluded. Three experienced radiologists independently evaluated the images for predefined features of ED. Cases with disagreement or atypical findings were referred for biopsy. Clinical data, including age, sex, handedness, BMI, symptoms, and occupation, were recorded. Lesion characteristics were quantitatively assessed, and statistical tests were employed to examine associations between clinical variables, lesion features, and interobserver agreement.

Results: The prevalence of ED was 1.1% based on 13,042 imaging records. The majority of patients (69%) were women. The overall mean age ± SD was 62.7 ± 7.3 years, with the highest frequency observed in individuals over 50 years of age. Among right-handed patients, 82% (n=112) had unilateral lesions on the right side, while 75% (n=6) of left-handed patients exhibited unilateral lesions on the left side. A total of 63.3% (n=91) of the patients were asymptomatic, with the prevalence of symptoms significantly higher in women (43.4%) compared to men (22.2%). The overall mean lesion size was 55 × 36 mm, which was significantly larger in the heavy manual labor group (mean area = 3060 mm2, SD=450 mm2, $P<0.05$). In the subgroup analysis of bilateral lesions, the dominant side demonstrated a significantly larger mean lesion area than the non-dominant side (1536 mm2 vs. 1120 mm2, $P<0.05$). Furthermore, we found that symptomatic patients also had a markedly higher mean lesion area (2257 mm2 vs. 1705 mm2). The mean ± SD HU of the lesions was 33 ± 4.1 (range, 19–48), compared to 46 ± 3.7 (range, 35–55) for the adjacent muscle.

Conclusion: Elastofibroma dorsi is more prevalent among women. Most patients remain asymptomatic, and the majority of lesions present unilaterally, in accordance with handedness. Occupational physical activity levels were positively correlated with lesion size, and larger lesions were associated with the presence of symptoms. In bilateral cases, the lesion on the dominant side exhibited greater dimensions than that on the non-dominant side.

Keywords: Elastofibroma dorsi, Soft tissue neoplasms, Elastic tissue, Scapula, Thoracic wall

Cite this article as: Samimi K, Kamali Hakim P, Zeinalkhani F, Zeinalkhani H, Ghaffari M, Ahmadinejad N, Nasiri Bonaki H, Delazar S, Rajabi H. Elastofibroma Dorsi: Demographic, Clinical, and Radiological Assessment: A Retrospective Study. *Med J Islam Repub Iran.* 2026 (18 Feb);40:17. https://doi.org/10.47176/mjiri.40.17

Corresponding author: Dr Mohammad Ghaffari, Mr-ghaffari@hotmail.com

1. Department of Radiology, Rasoul-e-Akram Hospital, Iran University of Medical Sciences, Tehran, Iran
2. Department of Radiology, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Radiology, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. Advanced Diagnostic and Interventional Radiology Research Center (ADIR), Tehran University of Medical Sciences, Tehran, Iran
5. School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

↑What is "already known" in this topic:
Elastofibroma dorsi is a benign, slow-growing soft tissue lesion located in the subscapular region, primarily affecting the elderly population. Although it is typically asymptomatic, it is often underdiagnosed or identified incidentally. The etiology of elastofibroma dorsi remains a topic of debate, with mechanical friction and genetic factors being the leading hypotheses.

→What this article adds:
This study includes 144 patients and establishes a significant positive association between heavy manual labor and increased lesion size, thereby supporting the mechanical microtrauma theory. Furthermore, it demonstrates that larger lesions are strongly correlated with the presence of clinical symptoms, aiding clinicians in identifying high-risk groups.

Introduction

Elastofibroma dorsi (ED) is a rare, slow-growing soft tissue hyperplastic lesion (pseudotumor) classified by the World Health Organization as a benign fibroblastic/myofibroblastic tumor (1, 2). Its estimated prevalence is 2.73%, increasing to 5.8% in individuals over 65 (3). ED accounts for approximately 2% of all primary tumors of the thoracic wall (4). However, certain studies suggest that ED is underdiagnosed due to its indolent behavior, slow growth, and the absence of disturbing symptoms in most patients. An autopsy study revealed that 24.4% of women and 11.2% of men were diagnosed with ED, highlighting a significant gap in the diagnosis of this lesion (5).

The classic location of ED is at the inferomedial border of the scapula, posteriorly bounded by the serratus anterior, rhomboid, and latissimus dorsi muscles. Less commonly, atypical lesions have been reported in the mediastinum, tricuspid valve, stomach, eye, inguinal region, greater omentum, peritoneum, ischial tuberosities, olecranon, deltoid muscle, intraspinal spaces, hands, and feet (6-10).

The exact nature of ED—whether reactive or neoplastic—remains a subject of debate. Several hypotheses regarding its pathogenesis have been proposed, including chronic scapulothoracic friction, reactive fibromatosis, collagen alterations, vascular insufficiency, genomic mutations, and inherited enzymatic defects. (2) Among these theories, two prominent ones are physical friction and genetic mutations. Seventy-seven percent of patients with ED have a history of long-term microtraumas, suggesting a physical origin. (11) Furthermore, certain mutations, specifically q arm gain in chromosomes X and 19, have been proposed, and their relevance to specific malignancies with similar genetic disturbances has been investigated, revealing significant correlations (5).

On physical examination, ED typically presents as a non-tender, mobile, palpable mass measuring between 4 and 14 cm. It is attached to the surrounding deep structures but not to the overlying skin, and it often becomes more prominent when the arm is abducted (2).

On chest X-rays, non-specific signs such as scapular elevation and increased scapulothoracic space may be observed, typically without any evidence of osteolysis or calcification (4). Ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI) elucidate the internal composition of ED, which consists of a mixture of collagen and elastic fibers within an adipose background (6). Ultrasonography is particularly indicative of ED when bilateral masses are visualized in the subscapular or prescapular regions, demonstrating a fibrillar or fasciculated appearance with alternating hyper- and hypoechoic streaks that run longitudinally along the lesion's long axis (12). ED is optimally diagnosed via MRI and CT. On CT scans, the typical appearance is a heterogeneous, non-encapsulated lenticular mass oriented in the craniocaudal direction. The lesion appears isodense compared to the adjacent muscles, with interspersed hypodense fatty streaks (Figure 1) (13). MRI is regarded as the non-invasive gold standard for differentiating ED from other common soft tissue tumors in the area, such as lipoma, liposarcoma, sarcoma, hemangioma, or hematoma. On MRI, ED typically manifests as a well-defined, heterogeneous, oblong mass with mixed signal intensities—intermediate (muscle-like) and low (fatty tissue)—creating a characteristic interlaced or striated pattern. This layered pattern runs linearly parallel to the thoracic wall on both T1- and T2-weighted sequences (Figure 2). Contrast enhancement is minimal or absent with gadolinium, alt-

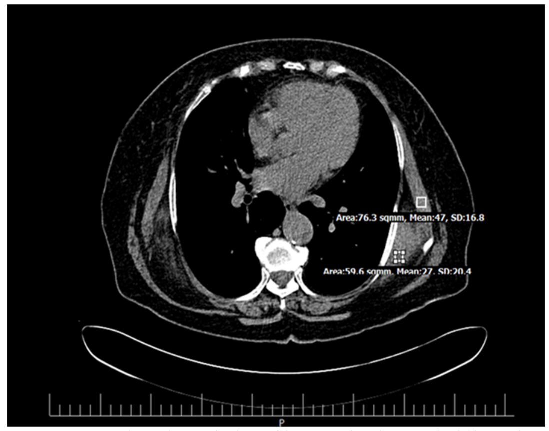

Figure 1. CT imaging of elastofibroma dorsi reveals bilateral soft tissue masses exhibiting attenuation comparable to that of adjacent muscles, interspersed with strands of fat, located deep to the serratus anterior and latissimus dorsi muscles.

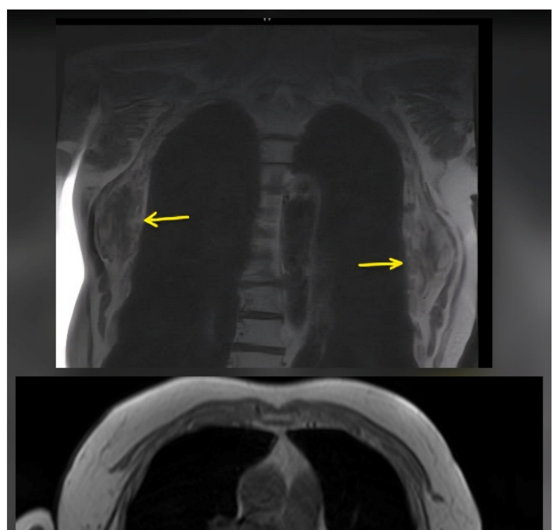

Figure 2. MRI of Elastofibroma Dorsi. Coronal (top) and axial T1-weighted (bottom) images without contrast demonstrate bilateral soft tissue masses interlaced with strands of fat, located deep to the serratus anterior and latissimus dorsi muscles.

[DOI: 10.47176/mjiri.40.17]

hough it may be more pronounced with gadopentetate dimeglumine (14). Incidental findings of ED on positron emission tomography (PET)/CT have further corroborated its benign nature, as lesions typically exhibit diffuse uptake and low 18F-fludeoxyglucose (FDG) activity, indicating low metabolic rates (15). Biopsy remains a final diagnostic step, reserved for cases in which MRI does not yield a definitive diagnosis (2). The treatment approach is contentious, and no definitive consensus has been established regarding the guidelines. Most of the literature suggests that treatment is generally unnecessary if malignancy is excluded. However, surgical excision may be considered for suspicious lesions or functional and aesthetic concerns, particularly when the mass exceeds 5 cm (16).

Despite extensive research, controversies persist regarding the relationships among lesion size, occupational stress, handedness, and symptoms, and these relationships remain poorly defined. Therefore, this study aimed to address these gaps by determining the correlation between occupational physical activity and lesion size, the relationship between lesion laterality and patient handedness, and the association between lesion size and the presence of clinical symptoms in a large, single-center imaging cohort.

Methods

This retrospective observational study utilized imaging and clinical records archived at a single radiology center. Data were collected from two distinct periods (January 2013–January 2016 and March 2022–March 2024). This two-phase approach was employed because the initial period yielded a limited sample size; a second data collection period was added to enhance the study's statistical power, facilitated by updates to the institution's digital archiving and IT systems. The data collection methodology, imaging protocols, and inclusion/exclusion criteria were consistent across both periods. All thoracic CT and MRI scans performed during this timeframe were screened for eligibility. Inclusion criteria required bilateral visualization of the scapular and axillary regions with high-quality imaging. Patients were included if their clinical records contained information on age, sex, handedness, occupation, body mass index (BMI), and symptom status at the time of imaging. Patients were excluded if imaging quality was inadequate, scapular regions were only partially visualized, or relevant clinical data were incomplete or missing. Scans of individuals with known soft tissue malignancies or prior scapular surgery were also excluded.

Radiological evaluation was conducted independently by three board-certified radiologists with 8–12 years of experience in musculoskeletal imaging. Prior to the review, a consensus was established regarding the predefined imaging features characteristic of ED: location beneath the scapula adjacent to the serratus anterior or latissimus dorsi muscles, an oblong or lenticular shape oriented parallel to the thoracic wall, a striated internal appearance with interspersed fat and soft tissue on CT or MRI, intermediate T1/T2 signal intensity with fatty streaks, and non-infiltrative, ill-defined borders without evidence of calcification or bone erosion. Cases were identified as ED when at least two radiologists independently agreed that the imaging features corresponded to this pattern. In instances where imaging consensus was not reached or atypical features were present, patients were referred for image-guided biopsy. Histopathological findings were utilized as the diagnostic standard in such cases.

Demographic and clinical data were extracted from medical records, including patient age, sex, weight, height, BMI, occupation, handedness, the presence and type of symptoms, and whether surgical excision or biopsy had been performed. Handedness was determined based on the patient's self-report as documented in the clinical admission records. Occupation was categorized according to physical workload: heavy manual labor (e.g., construction workers, factory workers, farmers, and similar active jobs), moderate (e.g., electricians, plumbers, and jobs that demand physical activity but are not as intense), and sedentary (e.g., office workers) to evaluate the potential influence of repetitive mechanical stress on lesion development.

Quantitative lesion measurements were obtained using picture archiving and communication system (PACS) software. Hounsfield units (HU) were measured at three representative points within each lesion and the adjacent muscle tissue; the average value was recorded. Lesion dimensions, including transverse and anteroposterior measurements, were recorded from the axial plane. The laterality of the lesion and its alignment with the patient's handedness were also analyzed.

Statistical analyses were conducted using SPSS™ Version 22.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including means, standard deviations (SD), ranges, frequencies, and percentages, were employed to summarize demographic, clinical, and radiological data. The Chi-square (χ^2) test was utilized to compare categorical variables, such as the prevalence of ED by sex and the frequency of symptoms between sexes. A one-way analysis of variance (ANOVA) was performed to compare mean lesion areas among the three occupational workload groups. An independent-samples t-test was conducted to compare mean lesion areas between symptomatic and asymptomatic patients. For the subgroup of patients with bilateral lesions, a paired-samples t-test was applied to compare the mean lesion area on the dominant side versus the non-dominant side. A p-value of less than 0.05 was deemed statistically significant.

Results

Out of 13,042 unique patients who underwent CT scans and MRIs, 144 patients were diagnosed with ED and included in the study. Women constituted the majority of the study population (69% vs 31%). The overall mean age was 62.7 years (range: 28–72), with the highest frequency observed in the 50–60 age range. Female patients had a higher mean age compared to male patients (65 vs 57) (Table 1). Details of other anthropometric variables are presented in Table 2. Most patients (136; 94.2%) were right-handed. Among them, 112 patients (82%) had a unilateral lesion on the right side, while 24 (18%) had bilateral involvement. Of the 8 left-handed individuals (5.8%),

[DOI: 10.47176/mjiri.40.17]

6 (75%) had a unilateral lesion on the left side, and 2 (25%) had bilateral lesions (Table 3).

The majority of patients (91; 63.3%) were asymptomatic. Among the symptomatic individuals (53 patients), 43 (81.1%) reported localized pain, 7 (13.2%) experienced shoulder heaviness, and 3 (5%) reported a clicking sensation during motion without any other abnormalities in their shoulder. Clinical findings were significantly more prevalent in women, with 43.4% (43 out of 99) of female patients reporting symptoms, compared to 22.2% (10 out of 45) of male patients (X2 =5.98, df=1, $P = 0.014$).

The overall average lesion size was 55 × 36 mm. Patients were categorized into three groups based on physical activity: sedentary (n = 42), moderate (n = 59), and heavy labor (n = 43). The mean lesion areas for each category were as follows: 1161 mm² (43 × 27 mm) in sedentary patients, 1768 mm² (52 × 34 mm) in moderate patients, and 3060 mm² (68 × 45 mm) in heavy labor patients. A one-way ANOVA revealed a statistically significant difference in lesion size among the groups (F = 2.823, df = 2,141, $P < 0.00628$).

In a subgroup of 26 patients with bilateral lesions (24 right-handed, 2 left-handed), the dominant side exhibited a significantly larger mean lesion area (1536 mm²; 48×32 mm, SD = 340 mm²) compared to the non-dominant side (1120 mm²; 40×28 mm, SD = 280 mm²). A paired t-test confirmed the statistical significance of this difference (mean difference = 416 mm², 95% CI [326 -510 mm²], t = 4.681, $P < 0.05$) (Table 4).

A subgroup analysis was conducted to evaluate the relationship between the presence of symptoms and lesion size. Symptomatic patients (n = 53) exhibited significantly larger lesions, with a mean size of 62 × 37 mm (mean area: 2257 ± 390 mm²), compared to asymptomatic patients (n = 91), whose lesions had a mean size of 55 × 31 mm (mean area: 1705 ± 420 mm²). This difference was statistically significant (mean difference = 552 mm², CI = 95% [410 mm², 694 mm²], t = 3.76, $p < 0.05$), indicating that lesion size is positively associated with the development of clinical symptoms in ED (Table 5).

Ten patients with inconclusive MRI findings underwent further evaluation via punch biopsy. Pathological analysis confirmed the diagnosis of ED in all cases (100%). Histological features included intertwined eosinophilic collagen and elastic fibers, occasional fibroblasts, small amounts of interstitial mucoid material, and clusters of mature adipocytes. Orcein staining revealed abnormally structured elastic fibers (Figure 3).

Table 1. The frequency and prevalence of ED cases across different age decades. The highest incidence was observed in the 50–59.9 age group, underscoring the condition's predominance among middle-aged individuals.

Age Range	Frequency (prevalence%)
20-29.9	2 (1.3%)
30-39.9	9 (6.2%)
40-49.9	17 (11.8%)
50-59.9	72 (50%)
60-69.9	44 (30.5%)

Table 2. Table presents the mean values, standard deviations, and ranges for key quantitative variables, including age, body weight, height, BMI, and Hounsfield units of the lesions and adjacent muscle tissue. These data provide insights into the typical physical profile and CT density characteristics associated with ED.

Quantitative Variables	Mean±SD	Range
Age (year)	62.7± 7.3	28-72
Weight (Kg)	72.9±18.9	42-103
Height (cm)	166±15.6	140-192
BMI* (Kg/m^2)	29±5.1	18-52.5
Lesion Hounsfield Unit	33±4.1	19-48
Adjacent Muscle Hounsfield Unit	46±3.7	35-55

Table 3. Table presents the correlation between patients' dominant hand and the side of lesion occurrence (right, left, or bilateral). A strong association was observed between handedness and lesion laterality, supporting the hypothesis that mechanical stress plays a role in pathogenesis.

Handedness	Unilateral Right	Unilateral Left	Bilateral Lesions	Total
Right-handed	112 (82.4%)	0 (0%)	24 (17.6%)	136 (100%)
Left-handed	0 (0%)	6 (75%)	2 (25%)	8 (100%)

Table 4. Summary of Comparisons of Lesion Size Based on Physical Load and Dominance

Comparison	Group/Side	Mean Size (mm)	Mean Area (mm²)	SD (mm²)	n	Test	*P*-value
Occupational workload	Sedentary	43 × 27	1161	320	42	One-way ANOVA	< 0.00628
	Moderate	52 × 34	1768	360	59	F=2.823, df=2,141	
	Heavy	68 × 45	3060	450	43		
Bilateral lesion (dominance)	Dominant side	48 × 32	1536	340	26	Paired t-test	< 0.05
	Non-dominant side	40 × 28	1120	280	26		

Table 5. Lesion Size Comparison Between Symptomatic and Asymptomatic Patients

Symptom Status	Mean Lesion Size (mm)	Mean Lesion Area (mm²)	SD (mm²)	n	Statistical Test	*P*-value
Symptomatic	62 × 37	2257	390	53	Independent t-test	<0.05
Asymptomatic	55 × 31	1705	420	91		

Note: Symptoms were significantly more prevalent in female patients (43.4%) compared to male patients (22.2%) (X^2 = 5.98, df=1, P=0.014).

[DOI: 10.47176/mjiri.40.17]

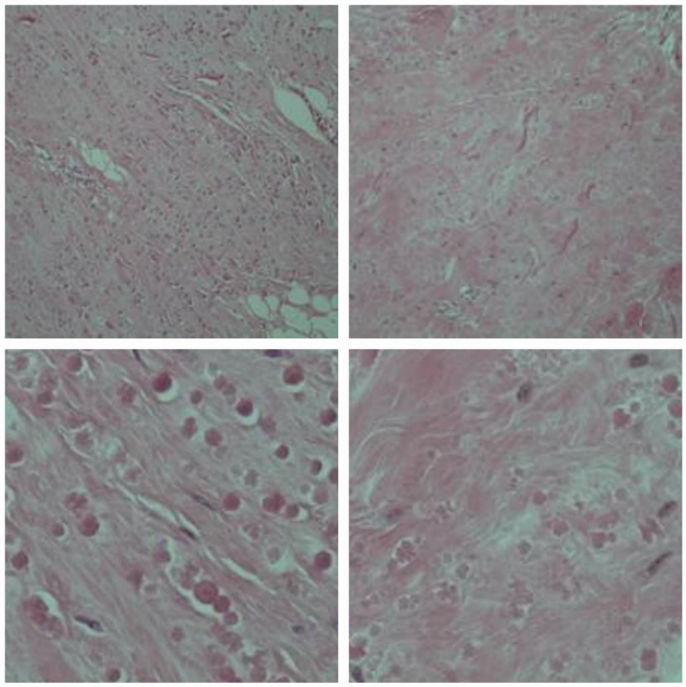

Figure 3. Histopathology of Elastofibroma Dorsi. Hematoxylin and Eosin (H&E) staining demonstrates the characteristic features of the lesion. The micrographs reveal a mixture of dense, eosinophilic collagenous tissue and mature adipose tissue, interspersed with numerous coarse, fragmented, and globular abnormal elastic fibers.

Furthermore, the mean ± SD Hounsfield units (HU) of the ED lesions were 33 ± 4.1 (range: 19–48), compared to 46 ± 3.7 (range: 35–55) for the adjacent muscle tissue.

Discussion

In our retrospective cross-sectional study, Elastofibroma dorsi (ED) was found to be more prevalent in women and typically occurred in individuals over the age of 50. The prevalence of ED in our imaging population was 1.1%. The discrepancy in the prevalence of ED in our study is likely attributable to the wide age range included (28-72 years). Consequently, we included younger individuals in whom the prevalence of the disease is lower. Most patients (80%) were aged 50 or older, with the highest frequency observed in the 50–60 age range (50%). Prior studies have reported varying prevalence rates depending on the study population and detection methods. For instance, a CT-based study estimated the prevalence of ED at approximately 2% in individuals over 60 years old, while autopsy series of subclinical ED lesions (<3 cm) reported higher rates (11.2% in men and 24.4% in women over 55 years). The age-related patterns in our data align with previous reports suggesting that ED generally develops in older adults, typically over the age of 55, with a mean age of nearly 60 years. We observed a female-to-male ratio of 2.2:1, which is consistent with findings from other literature that documented ratios ranging from 5:4 to 13:1 (3, 17). This female predominance was consistent across the studies. Although the exact cause remains unknown, some theories suggest it may be related to vascular insufficiency or genetic factors (2, 11).

Most studies indicate that ED occurs unilaterally in up to 90% of cases, with bilateral involvement ranging from 10% to 60% (3). In our study, unilateral lesions were observed in 81.9% of patients, predominantly on the dominant side. All right-handed individuals with unilateral lesions exhibited right-sided involvement, while left-handed patients presented with left-sided lesions. Bilateral lesions were noted in 18.1% of cases, with the dominant side consistently larger. These findings support the role of repetitive mechanical stress in the pathogenesis of ED. However, the significant occurrence of bilateral lesions, even among sedentary individuals, suggests that microtrauma alone cannot fully account for lesion development. Other factors, including vascular insufficiency and genetic predisposition, are likely contributors. Our results are consistent with previous studies that report similar patterns of lesion laterality and handedness correlation (3, 18, 19).

Furthermore, in our analysis, no association was identified between ED prevalence and body weight, height, or BMI.

Consistent with previous reports, more than half of our patients were asymptomatic. When symptoms were present, they typically included shoulder discomfort, stiffness, or restricted range of motion, sometimes accompanied by a clicking sensation. Periscapular pain was noted in approximately 10% of cases, while cervicobrachial neuralgia and sleep disturbances due to pain were rare (6, 9, 20). In our study, 63.3% of patients were asymptomatic, and the remainder experienced only mild, non-specific symptoms. This finding supports the benign and often silent nature of ED, which may contribute to delayed di-

[DOI: 10.47176/mjiri.40.17]

agnosis, occasionally as late as the seventh decade of life.

Identifying high-risk groups and modifying risk factors has always been important, as these efforts enable clinicians to prioritize vulnerable populations and reduce unnecessary diagnostic tests for the remainder of the population. The process of refining etiological theories by validating specific risk factors is essential across all medical disciplines. For instance, a recent study on gynecological cancers aimed to enhance MRI protocols to establish more efficient, targeted diagnostic pathways (22). Our data similarly provide a refinement, indicating that patients with a history of heavy manual labor, in particular, constitute a high-risk group that may necessitate more thorough examination of the subscapular region during thoracic imaging. Our study reveals a strong correlation between occupational labor and lesion size, as the mean lesion size increased with physical activity. We categorized occupations into three groups based on the level of repetitive movements: sedentary, moderate, and heavy. The mean size of lesions was greater in heavy laborers compared to those in moderate and sedentary jobs. This difference was statistically significant and supports the hypothesis that repetitive movements may contribute to the development of ED lesions. These findings suggest that individuals in physically demanding jobs are likely more susceptible to developing ED and should undergo more careful examination.

Furthermore, our study demonstrated that larger lesion dimensions are associated with the presence of symptoms, as symptomatic patients exhibited larger lesions compared to their asymptomatic counterparts. This difference was statistically significant and indicates a strong association between lesion size and the clinical manifestation of ED. This finding may also elucidate why the prevalence of ED is often underestimated, as its gradual progression necessitates that lesions attain a certain size before eliciting symptoms.

The challenge of distinguishing benign from malignant lesions on imaging to prevent unnecessary interventions is a common and rapidly evolving issue in radiology. For instance, in breast MRI, the Kaiser score flowchart is being replaced by the conventional BI-RADS standard, which yields improved specificity and demonstrates a significant ability to avoid unnecessary biopsies while maintaining high sensitivity. (23) The development of a similar, validated scoring flowchart for ED, based on its typical features on CT and MRI, could formalize diagnosis and further reduce invasive procedures for this benign condition. Notably, we observed a consistent difference in Hounsfield units (HU) between ED lesions and adjacent muscle on CT. This radiodensity contrast may provide a valuable diagnostic clue to streamline practice methods such as MRI and CT when they are unavailable or inconclusive.

Histologically, ED is characterized by non-encapsulated lesions with ill-defined borders and varying consistency, depending on the proportion of fibrous and adipose components. Microscopic examination reveals dense collagen and elastic fibers intermixed with mature adipose tissue. These Elastofibroma fibers appear as homogeneous eosinophilic structures, either fibrillar or globular in shape. Staining with orcein, Wiegert's method, or the Verhoef technique demonstrates variable dystrophic elastic fibers, some of which exhibit elongated, serrated borders, branched, or bead-like appearances, occasionally arranged in linear patterns (4, 21).

This study has several limitations. First, the evaluated occupations reflect the workforce distribution in our country, which may differ in other regions, thereby limiting the generalizability of our findings regarding occupational impact. Second, the retrospective design and reliance on imaging archives may have introduced selection bias, as patients with more advanced lesions are more likely to undergo imaging. Furthermore, although our sample of 144 patients is substantial for this rare condition and is based on the assessment of numerous images, some subgroup analyses were conducted with small sample sizes, which may have rendered the study underpowered to detect more subtle associations. Consequently, our results for these subgroups should be interpreted with caution. Third, genetic and molecular factors were not assessed in our study, which limits our ability to evaluate their role in ED pathogenesis.

Conclusion

In this study, we evaluated the demographic, clinical, and imaging characteristics of Elastofibroma dorsi. The majority of patients were middle-aged or older women, and the lesions were predominantly unilateral on the dominant side. We identified a clear association between occupational activity and lesion size, with heavier physical work correlating with larger lesions. Additionally, larger lesions were more frequently observed in symptomatic patients, indicating that lesion size is a significant factor in the manifestation of symptoms. In bilateral cases, the lesion on the dominant side was consistently larger, further supporting the potential influence of repetitive movements. However, bilateral lesions in sedentary individuals suggest that other factors, such as genetic predisposition, may also play a role. Imaging features, particularly the characteristic striated pattern on MRI and lower Hounsfield units on CT, remain the primary indicators for diagnosis. Given these findings, patients engaged in physically demanding occupations or those with larger lesions may require closer evaluation.

Acknowledgment

We acknowledge the contributions of the staff who made this work possible, including the radiology section personnel, the supervisor of Imam Khomeini Hospital, and all those who assisted us in gathering the data for the database.

Conflict of Interests

The authors declare that they have no competing interests.

Authors' Contributions

Kaveh Samimi, Fahimeh Zeinalkhani, and Peyman Kamali Hakim were the radiologists who assessed the radiographs. Mohammad Ghaffari summarized the data, wrote

[DOI: 10.47176/mjiri.40.17]

the initial draft, and edited the manuscript. Nasrin Ahmad-inejad contributed to patient selection and screening for appropriate case inclusion. Hadiseh Zeinalkhani contributed by analyzing the data and providing methodological consultation. Hirbod Nasiri Bonaki supported the coherence of the work through data gathering, organization, and coordination among team members. Sina Delazar and Hamid Rajabi assisted with data acquisition and entry, supporting the accuracy, completeness, and organization of the collected dataset.

Ethical Considerations

This study was conducted following institutional ethical guidelines and was approved by the ethics committee of Tehran University of Medical Sciences. Written informed consent was waived due to the retrospective nature of the study.

Funding Support

No funding was received for this study.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

AI Use Statement

We did not use AI for data entry, data acquisition, or methodological analysis. The images were interpreted by humans, and no AI was used for image assessment.

References

1. WHO Classification of Tumours Editorial Board. Soft Tissue and Bone Tumours. 5th ed. Lyon (France): International Agency for Research on Cancer; 2020. (WHO Classification of Tumours Series, Vol. 3).
2. Yamamoto T. Current Update on the Diagnosis, Management and Pathogenesis of Elastofibroma Dorsi. Anticancer Res. 2021 May;41(5):2211-2217.
3. Tepe M, Polat MA, Calisir C, Inan U, Bayav M. Prevalence of elastofibroma dorsi on CT: Is it really an uncommon entity? Acta Orthop Traumatol Turc. 2019;53(3):195-198.
4. Neagoe O, Faur CI, Ionică M, Baderca F, Folescu R, Gurgus D, Zamfir CL, Motoc A, Grigoraș ML, Mazilu O. Elastofibroma Dorsi, a Rare Condition, with Challenging Diagnosis. Case Report and Literature Review. Medicina. 2021;57(4):370.
5. Mujtaba B, Elshikh M, Murphy W, Amini B, Wei P, Rayan J, et al. Elastofibroma dorsi (ED): predictive sign of hematological malignancies. Int J Fam Commun Med. 2019;3(2):81–5. doi:10.15406/ijfcm.2019.03.00135.
6. Fattahi A, Shirkhoda M, Sanei Taheri M, Shahbazi A. Elastofibroma dorsi: What's new? A pictorial review. Pol J Radiol. 2020;85:e698–e706.
7. Hong ED, Kim EY, Ro JY, Lee KS. Atypical appearance of elastofibroma dorsi at thoracotomy sites: A case series and review of the literature. Thorac Cancer. 2020;11(10):2830–4.
8. Karrakchou B, Yaikoubi Y, Chairi MS, Jalil A. Elastofibroma dorsi: Case report and review of the literature. Pan Afr Med J. 2017;28:73.
9. Singh R, Bansal A, Kaur R, Sharma S. Elastofibroma dorsi: Clinical evaluation of 61 cases and review of the literature. Indian J Pathol Microbiol. 2018;61(3):381–6.
10. Silva E, Sousa R, Oliveira A, Lobo L, Fernandes T. Atypical elastofibroma dorsi: Bilateral prescapular elastofibromas in a young male—A case report and literature review. Radiol Case Rep. 2021;16(10):2730–3.
11. Fındıkçıoğlu A, Kılıç D, Karadayı Ş, Canpolat T, Reyhan M, Hatipoğlu A. A thoracic surgeon's perspective on the elastofibroma dorsi: a benign tumor of the deep infrascapular region. Thoracic Cancer 2013;4(1):35-40. https://doi.org/10.1111/j.1759-7714.2012.00139.x
12. Bishop M. Elastofibroma dorsi: case report with point of care ultrasound and literature review. Cureus. 2021;13(3):e13614. doi:10.7759/cureus.13614.
13. Pazionis TJ, Alradwan H, Deheshi BM, Turcotte R, Farrokhyar F, Ghert MA. Imaging diagnosis of thoracic elastofibroma dorsi. Clin Imaging. 2024;89:12–18. doi:10.1016/j.clinimag.2023.11.001.
14. Pi Y, Hammer MM. Imaging diagnosis of thoracic elastofibroma dorsi. J Comput Assist Tomogr. 2024;48(6):963–7. doi:10.1097/RCT.0000000000001626
15. Erhamamci S, Reyhan M, Nursal GN, Torun N, Yapar AF, Findikcioglu A, Canpolat T. Elastofibroma dorsi incidentally detected by (18)F-FDG PET/CT imaging. Ann Nucl Med. 2015;29(5):420–5. doi:10.1007/s12149-015-0959-5
16. Nagano S, Yokouchi M, Setoyama T, Sasaki H, Shimada H, Kawamura I, Ishidou Y, Setoguchi T, Komiya S. Elastofibroma dorsi: surgical indications and complications of a rare soft tissue tumor. Mol Clin Oncol. 2014;2(3):421–4. doi:10.3892/mco.2014.265
17. Daigeler A, Vogt PM, Busch K, Pennekamp W, Weyhe D, Lehnhardt M, et al. Elastofibroma dorsi–differential diagnosis in chest wall tumours. World J Surg Oncol. 2007;5:15. doi:10.1186/1477-7819-5-15.
18. Yılmaz BK, Türkay R, Özdemir S, İkizceli T, Selçuk Can T, Göçgün N, Atasoy B. Prevalence and radiologic features of elastofibroma dorsi: a CT study.
Curr Thorac Surg. 2023;8(1):16-22. doi:10.26663/cts.2023.003.
19. Yanarateş G, Fidan N. Elastofibroma Dorsi Detected Incidentally on Chest Computed Tomography: The Prevalence and Reporting Rate in Radiology Reports. Cureus. 2023 Dec 29;15(12):e51280. doi:10.7759/cureus.51280.
20. Muratori F, Esposito M, Rosa F, Liuzza F, Magarelli N, Rossi B, et al. Elastofibroma dorsi: 8 case reports and a literature review. J Orthop Traumatol. 2008;9(1):33–7. doi:10.1007/s10195-008-0101-6.
21. Soft tissue - Elastofibroma. PathologyOutlines.com. Updated June 28, 2023. Available from: https://www.pathologyoutlines.com/topic/softtissueelastofibroma.html
22. Zeinalkhani F, Kamali Hakim P, Mahdavi Sabet F, et al. Direct comparison of full protocol MRI and modified non-contrast MRI in determination of cancer origin in female genital tract cancers: A retrospective study. Abdom Radiol. 2025. doi:10.1007/s00261-025-05291-2
23. Mohammadzadeh S, Mohebbi A, Moradi Z, Abdi A, Mohammadi A, Kamali Hakim P, et al. Diagnostic performance of Kaiser score in the evaluation of breast cancer using MRI: A systematic review and meta-analysis. Eur J Radiol. 2025;186:112055. https://doi.org/10.1016/j.ejrad.2025.112055

[DOI: 10.47176/mjiri.40.17]