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Metastatic Squamous Cell Carcinoma of the Pleura: A Rare Complication of Hidradenitis Suppurativa

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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Conflict of interest: None declared

Patient: Male, 46
Final Diagnosis: Metastatic squamous cell carcinoma
Symptoms: Short of breath
Medication: —
Clinical Procedure: Pleural biopsy
Specialty: Oncology

Objective: Rare disease

Background: Squamous cell carcinoma (SCC), also known as Marjolin ulcer, is a rare complication of hidradenitis suppurativa (HS). Metastatic SCC from HS typically involves the axial skeleton or abdominopelvic viscera. Metastatic disease to the lungs is a rare phenomenon with only three reported cases of lung parenchyma. We present a biopsy proven case of metastatic SCC to the pleura from gluteal HS.

Case Report: A 46-year-old male with a history of recently diagnosed Marjolin ulcer secondary to gluteal HS was transferred to our intensive care unit for acute hypoxemic respiratory failure secondary to recurrent pleural effusion. On examination, patient was febrile (38.3°C), normotensive (blood pressure 98/65 mm Hg), tachycardic (116 beats/minute) and tachypneic (40 breaths/minute) with oxygen saturation of 93% on room air. He was in moderate distress requiring endotracheal intubation and mechanical ventilation. Chest examination revealed decreased breath sounds bilaterally and skin examination was significant for 18 cm wide sacral lesion. CT thorax showed bilateral pleural effusions, pleural thickening, and scattered nodular densities within both lungs concerning for metastatic disease. Thoracentesis showed lymphocyte predominant exudate with negative cytology for malignant cells. A video-assisted thoracoscopic surgery (VATS) illustrated thickened pleural rind with histopathology and positive p40 stain consistent with invasive well-to-moderately differentiated keratinizing SCC.

Conclusions: SCC arising from HS is rare and metastatic disease to the pleura has not been reported previously. Strong clinical suspicion for malignancy is warranted in patients with advanced HS and evolving pulmonary symptoms despite negative cytology.

MeSH Keywords: Carcinoma, Squamous Cell • Hidradenitis Suppurativa • Pleural Effusion, Malignant

Full-text PDF: http://www.amjcaserep.com/abstract/index/idArt/900829

Background

Squamous cell carcinoma (SCC) occurs in 4.6% of patients with hidradenitis suppurativa (HS) [1]. A 5: 1 male predominance is reported for SCC even though HS is more common in females [2,3]. SCC in HS involves the perineal, perianal, and gluteal skin with metastatic disease commonly present in the axial skeleton or abdominopelvic viscera [1]. Metastatic burden to the lungs is rare with only three reported cases of lung metastases associated with SCC in HS [1]. We report what appears to be the first biopsy-proven metastatic SCC of the skin with metastases to the pleura in a patient with HS.

Case Report

A 46-year-old overweight Hispanic male with a previous history of hypertension, 5-pack per year history of tobacco smoking and a 33-year history of Hurley type three gluteal HS was transferred to the medical intensive care unit (MICU) for acute hypoxemic respiratory failure secondary to recurrent pleural effusion. Six weeks prior, he was diagnosed with perianal SCC with positive inguinal lymph node biopsy. At the time, CT thorax did not reveal any intrathoracic abnormalities (Figure 1). On presentation to the MICU, he was febrile (38.3°C), normotensive (BP 98/65 mm Hg), tachycardic (116 beats/minute) and tachypneic (40 breaths/minute) with a peripheral capillary oxygen saturation of 93% on room air. He was in moderate distress, unable to speak in full sentences and was placed on non-invasive positive pressure ventilation (NIPPV). Due to worsening tachypnea and fatigue, patient underwent endotracheal intubation and was placed on mechanical ventilation. Chest examination revealed decreased breath sounds bilaterally and decreased air movement. Skin examination was significant for 18 cm wide sacral lesion with ulcerative borders and scant mucopurulent discharge. No axillary or cervical lymphadenopathy could be palpated. Laboratory studies showed leukocytosis (WBC count 23.8×10^3/μL, 90% neutrophils), anemia (Hgb 7.9 g/dL), and thrombocytosis (platelet count 594×10^3/μL). He was hypercalcemic (ionized calcium 1.63 mmol/L) with an elevated parathyroid hormone related peptide (35 pg/μL). Chest x-ray revealed a near complete opacification of right hemithorax. CT scan of the thorax revealed bilateral pleural effusion with right side greater than left, pleural thickening and evidence of scattered nodular densities within both lungs concerning for metastatic disease (Figure 2). Thoracentesis yielded 1,500 mL of serosanguinous fluid that was a lymphocyte predominant exudate with cytological evaluation negative for malignant cells. Repeat CT scan after thoracentesis showed significant pleural thickening and persistent nodular parenchymal disease (Figure 3). Second set of pleural fluid studies were consistent with lymphocyte predominant exudative pleural effusion but remained negative for malignant cells. A video-assisted thoracoscopic surgery (VATS)

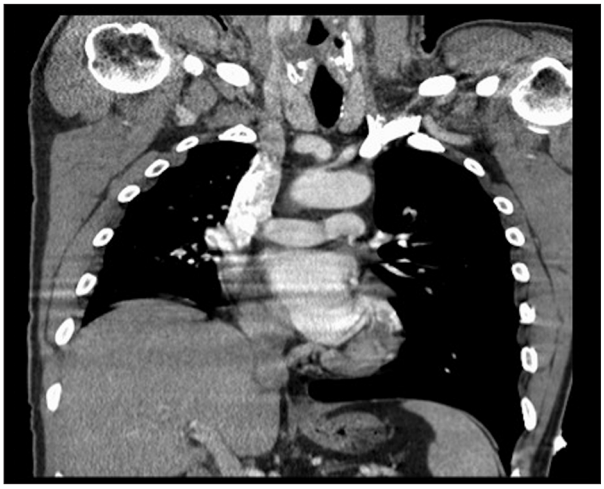

Figure 1. CT scan of thorax done at the time of SCC diagnosis from lymph node biopsy shows no pleural effusion, nodular parenchymal disease, or pleural thickening.

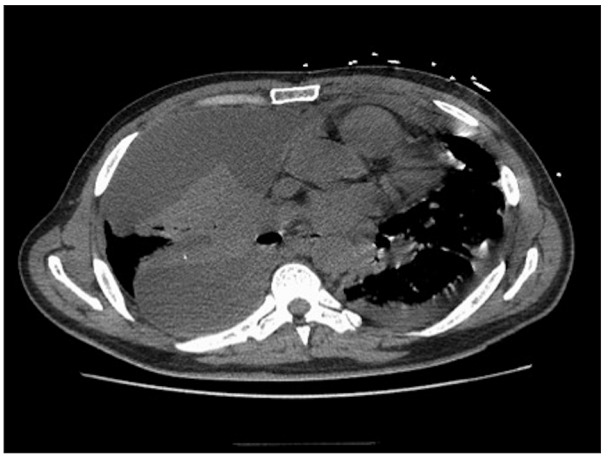

Figure 2. CT scan of thorax done two months after SCC diagnosis shows large right-sided pleural effusion and nodular parenchymal disease.

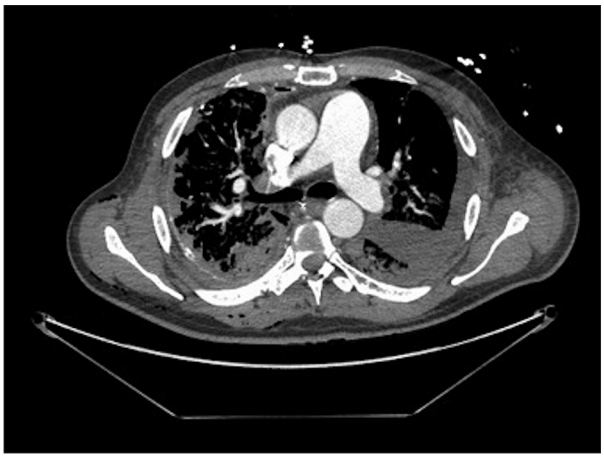

Figure 3. CT scan of thorax done after thoracentesis shows pleural thickening and nodularity.

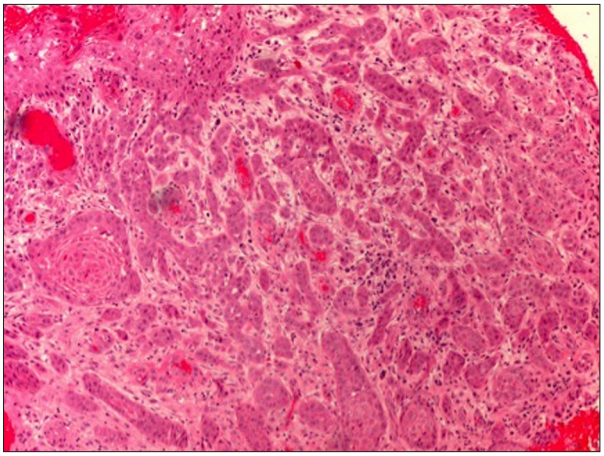

Figure 4. Hematoxylin and eosin stain (10×) of gluteal lesion with nests of tumor cells and keratin pearls consistent with invasive well-to-moderately differentiated keratinizing SCC.

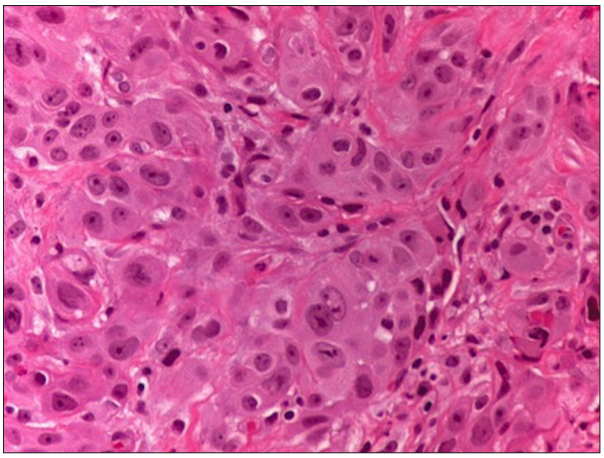

Figure 5. Hematoxylin and eosin stain (40×) of the pleural rind showing nests of tumor cells consistent with invasive well-to-moderately differentiated keratinizing SCC.

was subsequently performed with drainage of the recurrent pleural effusion. Biopsy of the pleural rind was performed and was positive for carcinoma on frozen section. Due to poor pleural compliance from invasive carcinoma and recurrent pleural effusion, patient had a persistent pneumothorax ex vacuo requiring chest tube and PleurX® catheter placement.

Initial histopathological examination of sacral lesion biopsy showed nests of polygonal cells with hyperchromatic nuclei and keratin pearls (Figure 4). Similar pathological findings were observed in the pleural rind biopsy (Figure 5). Additionally, both the sacral lesion and the pleural rind stained positive for immunoperoxidase stain p40 (Figure 6). Diagnosis of metastatic SCC of the pleura was favored due to rapid development of parenchymal and pleural disease and shared pathological characteristics between the two lesions.

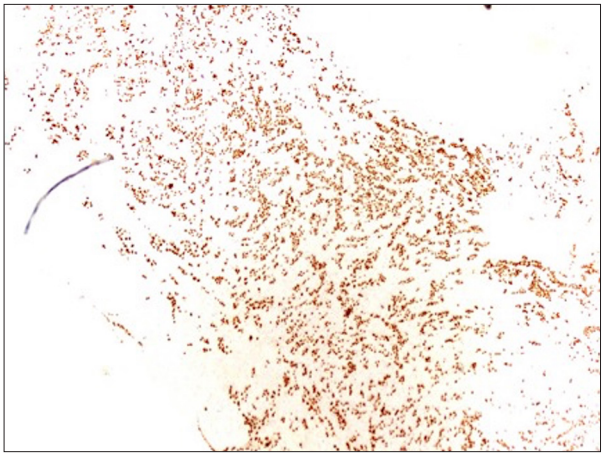

Figure 6. Low power (10×) view of pleural rind with immunoperoxidase p40 stain specific for SCC.

Given the patient's declining status and extensive disease burden, the decision was made by the family to pursue comfort measures and the patient was palliatively extubated. He subsequently passed away shortly thereafter.

Discussion

Hidradenitis suppurativa is a common disorder first described by a French physician Aristide Verneuil in 1854 [4]. HS can occur in up to 4.1% of the population and is known to predominantly affect women [5]. The pathogenesis is poorly understood but involves follicular hyperkeratosis, lymphocytic inflammation, and sinus tract formation [2,6]. Despite HS being more likely to develop in women, transformation to cancer occurs more commonly in men [1].

Development of SCC, also known as Marjolin ulcer, is a rare complication of HS [7]. Malignant transformation of HS into SCC occurs in about 4.6% of the patients [1]. Chronic inflammation is a major factor associated with this transformation [1]. These ulcerating lesions can also arise from chronic osteomyelitis, burns, diabetic foot ulcers, or trauma [7]. Marjolin ulcers resulting from chronic inflammation have a much higher rate of developing metastases compared to *de novo* SCC [7].

The most common sites for development of SCC are the perineal, perianal, and gluteal skin, paralleling the most common areas for HS to affect men [1]. Although distant metastasis is generally rare in SCC secondary to HS, metastatic sites reported in the literature include the axial skeleton, abdominopelvic viscera, peritoneum, vulva, and lung parenchyma [1,4,8]. In our patient, the metastatic disease was to the pleura. To the best of our knowledge, this is the first reported case of biopsy proven pleural SCC metastasis secondary to Marjolin ulcer arising from HS.

Diagnosis of SCC is confirmed by histopathological findings of polygonal cells, keratin pearls, and hyperchromatic nuclei [9]. The degree of differentiation is determined by the resemblance of cancer cells to native squamous cells present [9]. Additionally utilization of immunoperoxidase stain such as p40 is shown to be more specific for SCC compared to traditional p63 stain [10,11] and can bolster the diagnosis. Treatment of SCC in HS involves aggressive wide en-bloc surgical excision [5]. Despite this, patients can develop metastatic disease and treatment usually becomes palliative in nature [1]. In our patient, wide local excision of his sacro-gluteal SCC occurred too late as the patient already had metastatic disease to his inguinal lymph nodes prior to surgery.

The time frame from diagnosis of Marjolin ulcer to metastatic disease to the lung is not well established. The development of metastatic lung disease portends a poor prognosis with overall survival being two to three months from diagnosis [1]. High index of suspicion for malignancy should be maintained for HS in extra-axillary sites [12]. Pulmonary symptoms or new radiological findings should prompt an aggressive investigation to rule out metastatic disease. Negative pleural fluid cytology for malignancy does not exclude invasive disease, as in our patient, and diagnosis can be made with pleural biopsy.

Our patient was unique given his rapid development of invasive pleural disease from metastatic SCC in HS that led to acute hypoxemic respiratory failure and eventually multi-organ failure. Additionally, our patient was considerably younger compared to previously reported cases of lung metastatic disease at the time of SCC diagnosis [1]. Patients with HS who develop SCC must be aggressively evaluated for metastatic disease when they present with new symptoms or imaging changes.

Conclusions

SCC arising from HS is rare and metastatic disease to the pleura has not been reported previously. Pleural involvement of SCC can result in recurrent unilateral effusion and acute respiratory failure. Strong clinical suspicion for malignancy is warranted in patients with advanced HS and evolving pulmonary symptoms despite negative cytological examination.

Conflict of interest

None.

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