Cancer Management and Research

Elevate Series

Open Access Full Text Article

CASE REPORT

Sebaceous Carcinoma in the Right Inguinal Region with Multiple Metastases and a Poor Prognosis: A Case Report

Qian Gao*, Yuanhong Lin*, Yan Du, Chi Du

Department of Oncology and Hematology, Dujiangyan People's Hospital, Chengdu, Sichuan, People's Republic of China

*These authors contributed equally to this work

Correspondence: Chi Du, Email duchimd@yahoo.com

Introduction: Sebaceous carcinoma (SC) is a rare malignancy and can be divided into two types, ocular and extra-ocular SC. Extra-ocular SC is typically associated with a better prognosis than ocular SC. However, extra-ocular SCs located in atypical areas, such as the inguinal region, along with multiple metastases, are uncommon and present significant challenges, often leading to poorer outcomes.

Case Description: We present the case of a 68-year-old male patient who initially presented with a mass in the right inguinal region with multiple metastasis. A PET-CT scan revealed multiple enlarged lymph nodes and soft tissue masses in the abdominal and pelvic cavities. A biopsy confirmed the diagnosis of extra-ocular SC. Unfortunately, the disease progressed rapidly, and the patient succumbed to his illness just four months after diagnosis.

Conclusion: This case highlights the aggressive nature of extra-ocular SC in unusual locations, underscoring the necessity for heightened awareness and further research on this rare condition. Our findings contribute to a better understanding of extra-ocular SC and emphasize the urgent need for more investigation into optimal management strategies.

Keywords: Sebaceous carcinoma, skin cancer, metastasis, extra-ocular, dermatology

Background

Sebaceous carcinoma (SC), a rare malignant tumor accounting for 0.7% of all skin cancers,[1–3] has shown a rising incidence rate, though the cause remains unclear.[4–6] The origin of SC has been reported to be either sebaceous ducts or the interfollicular epidermis, with specific findings pointing to a group of progenitor cells that express p63 and keratin 5.[5–7] Additionally, there have been rare reports of in situ or invasive SC arising from squamous intraepidermal neoplasms.[8–11]

SCs have a recurrence rate ranging from 11% to 30%[12] and are most commonly diagnosed in individuals over the age of 40, particularly during the seventh and eighth decades of life.[4,13] The known risk factors for SC include advanced age, female gender, Asian race, prior radiation exposure, immunosuppression, and Muir-Torre syndrome,[1,13] a variant of Lynch syndrome marked by the loss of mismatch repair genes and microsatellite instability, which increases susceptibility to other cancers, such as colorectal and genitourinary types.[14–17] Due to its low incidence and variability in histopathological classification, SC can present significant diagnostic challenges.

Based on the location of SC, it can be divided into ocular SC and extra-ocular SC. Ocular SC is mostly observed in the periorbital area, accounting for approximately 75% of all SC cases. These typically arise from the meibomian glands, glands of Zeis, and sebaceous glands in the eyelid skin, with the upper eyelid being more commonly affected due to its higher density of meibomian glands.[18] Other ocular sites include the eyebrow, caruncle, lacrimal gland, and conjunctiva.[18–22] The remaining 25% of SC cases are extraocular, with approximately 70% located in the head and neck region, and 13% occurring on the back or trunk, but capable of arising wherever sebaceous glands are found.[23,24] They may also develop on the extremities, lungs, salivary glands, breast, the external auditory canal, oral mucosa, scalp,

Received: 9 October 2024
Accepted: 3 December 2024
Published: 10 December 2024

vulva, ovarian cysts, parotid, cervix, larynx, pharynx, palmoplantar region, nose, anal margin, and penis.[25,26] Both ocular and extra-ocular SC have high recurrence rates and are associated with regional nodal metastasis. In ocular SC, the recurrence incidence is 15%, with a 25% rate of regional or distant metastasis, occurring at a median of 8 months after diagnosis.[12,27] For extra-ocular SC, recurrence and distant metastasis rates are 29% and 21%, respectively,[28] with an average time to recurrence of 19.4 months.[3] SC is histologically marked by noncontiguous multicentric growth patterns and pagetoid spread, where cells proliferate randomly in the epithelium or other tissues.[29] This multicentric growth pattern, a poor prognosis marker, is distinctive of ocular SC. Pagetoid spread also mainly characterizes ocular SC and is rarely observed in extra-ocular SC. Metastases primarily affect lymph nodes but have also been reported in the lungs, brain, liver, small intestine, and urinary tract.[28] The 5-year survival rate for metastatic SC ranges from 50% to 68%, compared to 75.2–78% for localized/regional disease.[4,29] Poor prognostic indicators include tumors larger than 1 cm, poor differentiation, lympho-vascular invasion, and involvement of both upper and lower eyelids.[3]

In this report, we describe a case of extra-ocular SC in the right inguinal region, with metastasis to the right thigh and multiple abdominal lymph nodes.

Case Presentation

A 68-year-old male patient was referred to our hospital on April 13, 2017, after a 2-year history of an inguinal mass. He later developed claret-colored nodules scattered around his right thigh, along with edema in the right lower extremity. Notably, he experienced no pain, itching, or fever. His family history was significant for rectal and liver cancers, as his mother and one sister passed away from these conditions, respectively. The patient did not have a history of smoking, sexual promiscuity, or exposure to chemicals, carcinogens, or radiation. Upon examination, a 4×5 cm solid mass was found in the right inguinal region, characterized by irregular, poorly defined margins. The mass was firm on palpation, with an asymmetrical contour suggesting potential infiltration into adjacent tissues. Laboratory data was within normal limits, although the tumor marker test revealed elevated neuron-specific enolase (NSE) levels at 17.8μg/L (normal range ≤12.5μg/L).

A biopsy of the mass was performed, and histopathology revealed cells with hyperchromatic nuclei, prominent nucleoli, and scant cytoplasm, along with multivesicular and vacuolated clear cytoplasm. Immunohistochemical examination was positive for BCL-2, P53, P63, CK5/6, and EMA, and negative for PSA, CK20, CEA, and CK7 [Figure 1]. These findings, especially the histopathological features and positive immunohistochemical markers, like EMA, confirmed the diagnosis of sebaceous carcinoma.

Whole-body fluorodeoxyglucose (FDG) positron emission tomography-computed tomography (PET-CT) revealed multiple enlarged lymph nodes and soft tissue masses in the abdominal and pelvic regions, including areas in the left lateral root of the neck, supraclavicular fossa, posterior mediastinum, and inguinal regions, with a calculated standardized

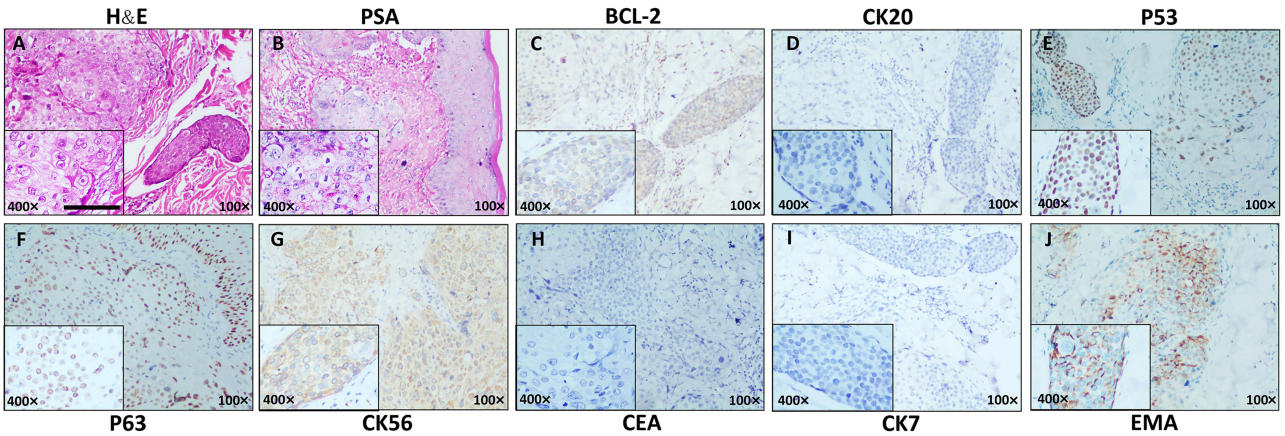

Figure 1 Histochemical findings of the resected specimen. (**A**) Hematoxylin-eosin (H&E) staining. Scale bar: 50μm. (**B**) Prostate-specific antigen (PSA). (**C**) B-cell lymphoma-2 (BCL-2). (**D**) Cytokeratin 20 (CK20). (**E**) P53. (**F**) P63. (**G**) Cytokeratin 5/6 (CK5/6). (**H**) Carcinoembryonic antigen (CEA). (**I**) Cytokeratin 7 (CK7). (**J**) Epithelial membrane antigen (EMA).

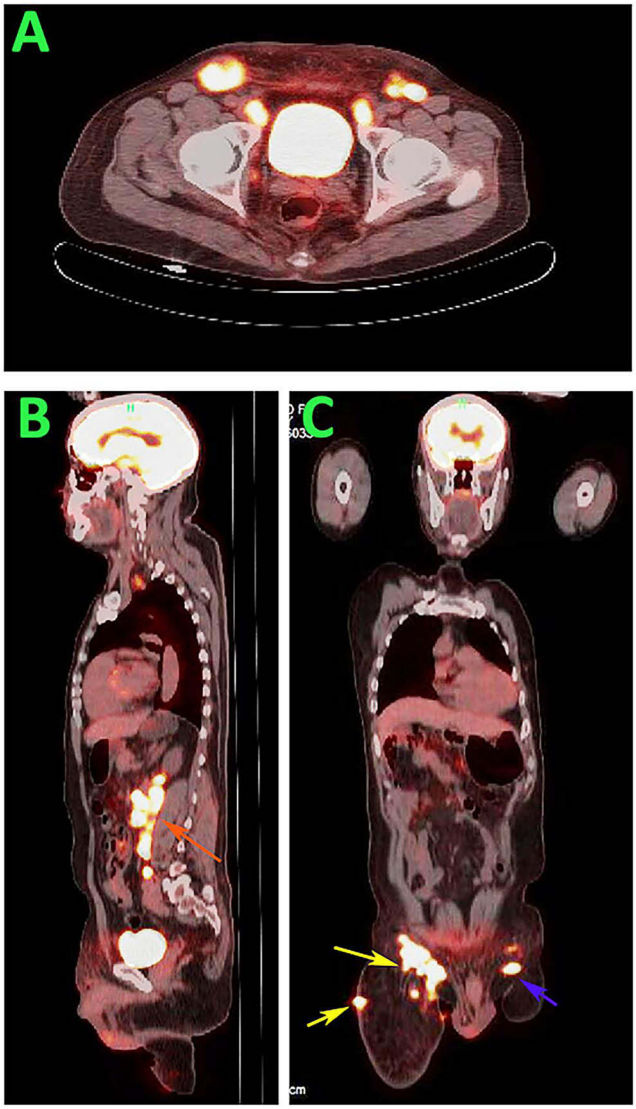

Figure 2 Whole body fluorodeoxyglucose (FDG) positron emission tomography-computed tomography (PET-CT) images. The PET-CT reveals masses in the right inguinal region (yellow arrow) with metastasis in the right thigh (yellow arrow), left inguinal region (blue arrow), and extensive abdominal lymph nodes (red arrow). (**A**) Cross-sectional CT view; (**B**) Median sagittal section; (**C**) Frontal plane.

uptake value (SUV) max of 8.8. Additionally, soft tissue masses were noted in the right inguinal region (3.6 × 3.4 cm, SUV max 6.6), as well as multiple subcutaneous nodules and elevated focal nodules in the right thigh and left posterior distal thigh [Figure 2].

Chemotherapy with a paclitaxel-cisplatin regimen was proposed. However, the patient declined treatment and was discharged. A follow-up call revealed that the patient passed away in August 2017, with no further details provided by the family. The rapid progression of the disease, with metastasis at the time of diagnosis, likely contributed to the patient's short survival.

Discussion

The first documented case of inguinal sebaceous carcinoma (SC) appeared in 2012, describing a 63-year-old male with an ulcerated lesion but no metastasis.[30] In contrast, our case presents a more aggressive inguinal SC with metastasis to the right thigh and abdominal lymph nodes, leading to a poor prognosis. The patient passed away just four months after diagnosis, unlike studies that report five-year survival rates for metastatic SC ranging from 50% to 68%.[4] The rapid metastatic progression in this case highlights the aggressive nature of SC and suggests a worse prognosis for extra-ocular

variants at atypical sites.[31,32] Most extra-ocular SC cases show dermal invasion, rarely spreading to subcutaneous tissue and muscle.[33–35]

Muir-Torre syndrome has been reported to increase the likelihood of sebaceous carcinoma.[13] However, although this patient had a family history of cancer, MTS screening was not conducted here due to a lack of additional indicative factors. For younger patients (under 50) with extra-ocular sebaceous carcinoma, tumor tissue mismatch repair protein immunohistochemistry testing may be considered.[3]

Histological diagnosis of SC can be challenging, as it may resemble benign or malignant epithelial neoplasms, including sebaceous adenomas, basal cell carcinoma (BCC), Paget's disease, squamous-cell carcinoma (SCC), and clear cell tumors. While no definitive protein marker exists for SC, histological features like multivesicular and vacuolated clear cytoplasm are common. Immunohistochemical markers, such as EMA, can help differentiate SC from other malignancies.[36] Although immunohistochemistry is frequently used to confirm an SC diagnosis, it may not be necessary if histopathological findings are characteristic,[3] as seen in this case.

Currently, no standardized SC treatment guidelines exist. The main treatment goal for sebaceous carcinoma is complete excision with clear surgical margins while preserving function and cosmesis.[3] SC treatment generally involves primary tumor excision with wide local excision or Mohs micrographic surgery (MMS)[1–3] in limited areas. For extra-ocular SC, a complete peripheral margin clearance of 1.0 cm has been suggested.[2] Retrospective studies indicate lower recurrence rates after MMS compared to wide local excision for both ocular and extra-ocular SC.[3,29] For cases with lymph node metastasis, resection and lymph node biopsy are recommended, though the value of sentinel lymph node biopsy in SC without lymph node metastasis remains unclear.[2] If distant metastasis is present in extra-ocular SC, chemotherapy and immunotherapy may be considered, though efficacy data are limited due to the scarcity of case reports.[2,3,37] A report on chemotherapy using a paclitaxel-cisplatin regimen has shown successful treatment;[38] therefore, we recommended it here. For radiotherapy, factors such as lymphovascular invasion, lymph node positivity, perineural invasion, bone infiltration, and anaplasia suggest that a combination of surgery and adjuvant radiation therapy may be preferable to surgery alone for aggressive extra-ocular SC with lymph node metastasis. Surgery with adjuvant radiation therapy is generally reserved for locally advanced tumors or those with positive resection margins.[28] Postoperative radiation therapy has been reported as beneficial for extra-ocular SC treatment,[39] especially in cases with positive margins.[40] Radiation therapy's role in treating recurrent tumors has also been documented,[3] though its efficacy remains uncertain.

The rarity of extra-ocular SC and the lack of well-developed treatment guidelines made the patient hesitant to follow our recommendations, also diminishing his willingness to attend follow-ups. He ultimately passed away only four months after diagnosis. Given the limited number of reported cases of rare extra-ocular SC, further studies are essential to expand our understanding of the disease. This knowledge would support the development of more effective treatments, helping to improve SC outcomes and build patient confidence in treatment options that offer greater hope and choices.

Conclusion

This case contributes to the understanding of rare extra-ocular SC and highlights its aggressive nature when occurring in atypical regions, such as the inguinal area. Early identification and prompt management are critical to improving prognosis, particularly in cases with metastatic spread. Due to the rarity of this malignancy, further studies are essential to develop more effective diagnostic and treatment strategies for this challenging condition.

Ethics Approval and Consent to Participate

The Ethical Committee of Dujiangyan People's Hospital reviewed and approved this case report.

Acknowledgment

The case report follows the CARE guidelines. The patient's legal representative provided the consent for the publication of the case report.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

References

1. Kyllo RL, Brady KL, Hurst EA. Sebaceous carcinoma: review of the literature. *Dermatol Surg*. 2015;41:1–15. doi:10.1097/DSS.0000000000000152
2. Knackstedt T, Samie FH. Sebaceous carcinoma: a review of the scientific literature. *Curr Treat Options Oncol*. 2017;18:47. doi:10.1007/s11864-017-0490-0
3. Owen JL, Kibbi N, Worley B, et al. Sebaceous carcinoma: evidence-based clinical practice guidelines. *Lancet Oncol*. 2019:20–714. doi:10.1016/S1470-2045(19)30673-4
4. Sargen MR, Starrett GJ, Engels EA, et al. Sebaceous carcinoma epidemiology and genetics: emerging concepts and clinical implications for screening, prevention, and treatment. *Clin Cancer Res*. 2021;27:389–393. doi:10.1158/1078-0432.CCR-20-2473
5. Boecker W, Reusch M, Mielke V, et al. Twenty-eight cases of extraocular sebaceous carcinoma: a correlative clinicopathological and immunohistochemical analysis of extraocular sebaceous carcinomas and benign sebaceous gland tumors. *Am J Dermatopathol*. 2021;43:93–102. doi:10.1097/DAD.0000000000001667
6. Boecker W, Reusch M, Mielke V, et al. Spatial analysis of p63, K5 and K7 defines two groups of progenitor cells that differentially contribute to the maintenance of normal sebaceous glands, extraocular sebaceous carcinoma and benign sebaceous tumors. *J Dermatol*. 2019;46:249–258. doi:10.1111/1346-8138.14765
7. Namiki T, Miura K, Yokozeki H, Ansai SI. Bowen disease with sebaceous differentiation: a case report and immunohistochemical analysis of adipophilin and cytokeratin 1. *Am J Dermatopathol*. 2018;40:841–845. doi:10.1097/DAD.0000000000001175
8. Misago N, Kuwashiro M, Tsuruta N, Narisawa Y. Sebaceous carcinoma in association with actinic keratosis: a report of two cases with an immunohistochemical study. *J Dermatol*. 2015;42:616–620. doi:10.1111/1346-8138.12840
9. Aung PP, Batrani M, Mirzabeigi M, Goldberg LJ. Extraocular sebaceous carcinoma in situ: report of three cases and review of the literature. *J Cutan Pathol*. 2014;41:592–596. doi:10.1111/cup.12351
10. Ishida M, Iwai M, Yoshida K, Kagotani A, Okabe H. Sebaceous carcinoma associated with Bowen's disease: a case report with emphasis on the pathogenesis of sebaceous carcinoma. *Int J Clin Exp Pathol*. 2013;6:3029–3032.
11. Ishida M, Okabe H. Intraepidermal sebaceous carcinoma occurring concurrently with actinic keratosis. *J Cutan Pathol*. 2012;39:731–732. doi:10.1111/j.1600-0560.2012.01881.x
12. Watanabe A, Sun MT, Pirbhai A, et al. Sebaceous carcinoma in Japanese patients: clinical presentation, staging and outcomes. *Br J Ophthalmol*. 2013;97(11):1459–1463. doi:10.1136/bjophthalmol-2013-303758
13. Gall R, Ortiz-Perez S. Sebaceous gland carcinoma. In: *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing; 2023.
14. Gay JT, Gross GP. *Muir-Torre Syndrome*. Treasure Island (FL): StatPearls; 2019.
15. Harwood CA, Swale VJ, Bataille VA, et al. An association between sebaceous carcinoma and microsatellite instability in immunosuppressed organ transplant recipients. *J Invest Dermatol*. 2001;116:246–253. doi:10.1046/j.1523-1747.2001.01233.x
16. Cohen PR, Kohn SR, Davis DA, Kurzrock R. Muir-Torre syndrome. *Dermatol Clin*. 1995;13:79–89. doi:10.1016/S0733-8635(18)30110-4
17. John AM, Schwartz RA. Muir-Torre syndrome (MTS): an update and approach to diagnosis and management. *J Am Acad Dermatol*. 2016;74:558–566. doi:10.1016/j.jaad.2015.09.074
18. Rao NA, Hidayat AA, McLean IW, et al. Sebaceous carcinomas of the ocular adnexa: a clinicopathologic study of 104 cases, with five-year follow-up data. *Hum Pathol*. 1982;13:113–122. doi:10.1016/S0046-8177(82)80115-9
19. Shields JA, Demirci H, Marr BP, et al. Sebaceous carcinoma of the ocular region: a review. *Surv Ophthalmol*. 2005;50:103–122. doi:10.1016/j.survophthal.2004.12.008
20. Honavar S, Shields C, Maus M, et al. Primary intraepithelial sebaceous gland carcinoma of the palpebral conjunctiva. *Arch Ophthalmol*. 2001;119(5):764. doi:10.1001/archopht.119.5.764
21. Yamamoto N, Mizoe JE, Hasegawa A, et al. Primary sebaceous carcinoma of the lacrimal gland treated by carbon ion radiotherapy. *Int J Clin Oncol*. 2003;8(6):386–390. doi:10.1007/s10147-003-0348-2
22. Yoon JS, Kim SH, Lee CS, et al. Clinicopathological analysis of periocular sebaceous gland carcinoma. *Ophthalmologica*. 2007;221(5):331–339. doi:10.1159/000104764
23. Tryggvason G, Bayon R, Pagedar NA. Epidemiology of sebaceous carcinoma of the head and neck: implications for lymph node management. *Head Neck*. 2012;34(12):1765–1768. doi:10.1002/hed.22009
24. Tripathi R, Chen Z, Li L, et al. Incidence and survival of sebaceous carcinoma in the United States. *J Am Acad Dermatol*. 2016;75(6):1210–1215. doi:10.1016/j.jaad.2016.07.046
25. Ray J, Worley GA, Schofield JB, Shotton JC, al-Ayoubi A. Rapidly invading sebaceous carcinoma of the external auditory canal. *J Laryngol Otol*. 1999;113:578–580. doi:10.1017/s0022215100144536
26. Monteiro CM, Martins CJ, Sobral MM, et al. Sebaceous carcinoma. *An Bras Dermatol*. 1997;72:565–567.
27. Huis In 't Veld E, Keizer R, Post N, et al. Outcome after treatment for sebaceous carcinoma: a multicenter study. *J Surg Oncol*. 2022;125(4):730–735. doi:10.1002/jso.26774

28. Dasgupta T, Wilson LD, Yu JB. A retrospective review of 1349 cases of sebaceous carcinoma. *Cancer*. 2009;115(1):158–165. doi:10.1002/cncr.23952
29. Snow SN, Larson PO, Lucarelli MJ, Lemke BN, Madjar DD. Sebaceous carcinoma of the eyelids treated by mohs micrographic surgery: report of nine cases with review of the literature. *Dermatol Surg*. 2002;28:623–631. doi:10.1046/j.1524-4725.2002.01306.x
30. Oschilewski D, Bernardes Filho F, Vega H, Kac BK, Pereira MR, Nery JAC. Inguinal ulcerated sebaceous carcinoma: an unusual presentation. *An Bras Dermatol*. 2013;88(6 Suppl 1):48–51. doi:10.1590/abd1806-4841.20132019
31. Hood IC, Qizilbash AH, Salama SS, et al. Sebaceous carcinoma of the face following irradiation. *Am J Dermatopathol*. 1986;8:505–508. doi:10.1097/00000372-198612000-00009
32. Prioleau PG, Santz Cruz DJ. Sebaceous gland neoplasia. *J Cutan Pathol*. 1984;11:396–414. doi:10.1111/j.1600-0560.1984.tb00397.x
33. Misago N, Toda S, Narisawa Y. Two histopathologic patterns of well-differentiated extraocular sebaceous carcinoma. *J Cutan Pathol*. 2011;38:767–774. doi:10.1111/j.1600-0560.2011.01759.x
34. Flohil SC, van Lee CB, Beisenherz J, et al. Mohs micrographic surgery of rare cutaneous tumors. *J Eur Acad Dermatol Venereol*. 2017;31:1285–1288. doi:10.1111/jdv.14079
35. Dragusin AI, Andrei RT, Bastian AE, et al. Sebaceous carcinoma, a rare and aggressive cutaneous malignancy: a report of nine cases. *Virchows Arch*. 2016;469(suppl 1):S252.
36. Dores GM, Curtis RE, Toro JR, et al. Incidence of cutaneous sebaceous carcinoma and risk of associated neoplasms: insight into Muir-Torre syndrome. *Cancer*. 2008;113(12):3372–3381. doi:10.1002/cncr.23963
37. Nelson BR, Hamlet KR, Gillard M, et al. Sebaceous carcinoma. *J Am Acad Dermatol*. 1995;33:1–15,quiz16–18. doi:10.1016/0190-9622(95)90001-2
38. Joshi P, Joshi A, Norohna V, et al. Sebaceous carcinoma and systemic chemotherapy. *Indian J Med Paediatr Oncol*. 2012;33(4):239–241. doi:10.4103/0971-5851.107105
39. Chang AY, Miller CJ, Elenitsas R, Newman JG, Sobanko JF. Management considerations in extraocular sebaceous carcinoma. *Dermatol Surg*. 2016;42:Suppl1–65. doi:10.1097/DSS.0000000000000575
40. Giridhar P, Kashyap L, Mallick S, Dutt Upadhyay A, Rath GK. Impact of surgery and adjuvant treatment on the outcome of extraocular sebaceous carcinoma: a systematic review and individual patient's data analysis of 206 cases. *Int J Dermatol*. 2020;59:494–505. doi:10.1111/ijd.14739