



Histiocytic Sarcoma a Rare Neoplasia

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Abstract

Histiocytic sarcoma (HS) is an extremely rare neoplasia, of hematopoietic origin that accounts for less than 1% of hematologic malignancies. HS can be localized or disseminated and the majority of lesions are reported presenting at extra-nodal sites, most frequently in the soft tissues and skin. Most patients presenting HS are being treated on an individual basis and the outcomes are still poor, especially in those with advanced or disseminated disease. There is no standard treatment recommended for HS. The treatment protocols available in the literature are diverse, with most patients being treated on an individual basis. Surgery and/or chemotherapy are the most commonly employed treatments, but radiotherapy seems to be an effective option in patients with localized disease.

Introduction

Histiocytic sarcoma (HS) is an extremely rare neoplasia, of hematopoietic origin that accounts for less than 1% of hematologic malignancies. Previously known as "true histiocytic lymphoma", the tumor follows an aggressive clinical course. According with the World Health Organization classification HS is characterized by the proliferation of malignant cells that have the morphological and immunohistochemical characteristics of mature histiocytes. HS can be diagnosed in all age groups, but it is most frequently seen in adults [1].

The term HS was first introduced by Mathe et al. [2] based on an analysis of 110 cases of "reticulosarcomas" that were grouped into two varieties: histoblastic and histiocytic types. They noted that both types had the same duration of evolution, but with the difference that the presence of cutaneous lesions was predominant in the histiocytic type.

HS can be localized or disseminated. The majorities of lesions are reported with presentation at extra-nodal sites, most frequently in the soft tissues and skin [3]. Other anatomical sites and can also be affected including the intestinal tract, the central nervous system, head and neck structures like thyroid and parotid among others [4-6]. Cases of HS associated with malignant leukemia or lymphoma have been also reported, but the nature of this association has not been established [7].

Recent studies have shown that HS has a prominent inflammatory background and is immunoreactive for CD45, CD163, CD68, and lysozyme. The differential diagnosis includes metastatic carcinoma, metastatic melanoma, and large cell non-Hodgkin lymphomas and should be excluded by immunohistochemistry. The CD163, a recently characterized hemoglobin scavenger receptor, appears to be a 'specific' marker of histiocytic lineage and a promising diagnostic tool for HS [8].

Most patients presenting HS are being treated on an individual basis and the outcomes are still poor, particularly in those with advanced or disseminated disease. The largest series published of HS treated with upfront surgery with the intent of diagnosis or treatment included 14 patients. All patients presented with a solitary mass with sizes ranging from 1.8 cm to 12 cm. Seven tumors arose in soft tissue, 5 in the gastrointestinal tract, 1 in the nasal cavity, and 1 in the lung. Six patients were treated with postoperative radiation and 7 with chemotherapy (CHOP or PROMACE-MOPP). The follow up was available for 10 patients: 2 of them recurred locally, and 5 patients developed distant metastasis [9].

The International Lymphoma Study Group stained 61 tumors of suspected histiocytic/dendritic cell type with a panel of 15 antibodies and found 18 malignant histiocytic tumors, with 15 cases of HS and 3 cases of malignant histiocytosis with disseminated disease. In this series there was a predominance of males, adults (median age: 46 years) and extranodal (72%) presentation. The following phenotype was observed: CD68 (100%), LYS (94%), CD1a (0%), S100 (33%), CD21/35 (0%). Nine patients (50%) had stage III or stage IV disease, and seven patients (58%) died of the

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Table 1: Case reports including histiocytic sarcoma and radiotherapy.

Author (reference)	Radiotherapy (dose/fraction)	Follow up	Status
Kim et al. [15]	60 Gy/30 fx	NA	NA
Chen et al. [11]	50 Gy/25 fx	36 months	NED
Gounder et al. [16]	30 Gy to 60 Gy/30 Gy to 35 fx	NA	NA
Chen et al. [17]	66 Gy/33 fx	3 months	leptomeningeal metastasis
Pérez-Ruiz et al. [18]	61.2 Gy/34 fx	48 months	NED
De Vos et al. [19]	40 Gy/20 fx	24 months	NED

fx: Number of Fractions; NA: Not Available; NED: No Evidence of Disease.

disease [10].

Despite the rarity of the disease and paucity of data, radiotherapy has been used in some instances with a relative success in the local control. Table 1 depicts doses, fractions of radiotherapy and outcomes.

Chen et al. [11] recently published a case of a patient with oropharyngeal HS and regional lymph node involvement that was successfully treated with a combination of CHOP-E and adjuvant radiotherapy (50 Gy given in 25 fractions). The patient had no evidence of recurrent disease after 3 years of the end of the treatment.

Recent reviews reported the use of thalidomide in patients with HS after systemic failure [12,13]. The potential mechanisms of antitumoral activity of thalidomide include inhibition of both vascular and fibroblast growth factors, cytokine regulation, apoptosis induction and oxidative DNA damage by free radicals. One review of the use of thalidomide in pediatric patients concluded that it should be used as a last resort when all other therapies fail [14].

Conclusions

Currently there is no standard treatment recommended for HS. The treatment protocols available in the literature are diverse, with most patients being treated on an individual basis. Although HS is considered a potentially fatal disease, some cases do not pursue such an aggressive clinical course. Surgery and/or chemotherapy are the most commonly employed treatments, but radiotherapy also seems to be a treatment option in patients with localized disease. Future research is still needed to explore the use of new treatment combinations in this entity.

References

1. Swerdlow SH, Campo E, Harris NL, Jaffe ES, Pileri SA, Stein H, et al. WHO Classification of tumours of haematopoietic and lymphoid tissues. 4th ed. Lyon: IARC Press, France; 2008. pp. 354-57.
2. Mathé G, Gerard-Marchant R, Texier JL, Schlumberger JR, Berumen L, Paintrand M. The two varieties of lymphoid tissue "reticulosarcomas," histiocytic and histoblastic types. *Br J Cancer*. 1970;24(4):687-95.
3. Frater JL, Kling CW, Obadiah JM, Gardner LJ, Grosso LE, Resh B, et al. Histiocytic sarcoma with secondary involvement of the skin and expression of CD1a: evidence of indeterminate cell differentiation? *J Cutan Pathol*. 2006;33(6):437-42.
4. Feldman AL, Minniti C, Santi M, Downing JR, Raffeld M, Jaffe ES. Histiocytic sarcoma after acute lymphoblastic leukaemia: A common clonal origin. *Lancet Oncol*. 2004;5(4):248-50.
5. Munoz J, Sanchez BE, Wang D. Histiocytic sarcoma of the thyroid. *Am J Hematol*. 2012;87(5):531.
6. Akiba J, Harada H, Kawahara A, Arakawa F, Mihashi H, Mihashi R, et al. Histiocytic sarcoma of the parotid gland region. *Pathol Int*. 2011;61(6):373-6.
7. Soslow RA, Davis RE, Warnke RA, Cleary ML, Kamel OW. True histiocytic lymphoma following therapy for lymphoblastic neoplasms. *Blood*. 1996;87(12):5207-12.
8. Vos JA, Abbondanzo SL, Barekman CL, Andriko JW, Miettinen M, Aguilera NS. Histiocytic sarcoma: a study of five cases including the histiocyte marker CD163. *Mod Pathol*. 2005;18(5):693-704.
9. Hornick JL, Jaffe ES, Fletcher CD. Extranodal histiocytic sarcoma: clinicopathologic analysis of 14 cases of a rare epithelioid malignancy. *Am J Surg Pathol*. 2004;28(9):1133-44.
10. Pileri SA, Grogan TM, Harris NL, Banks P, Campo E, Chan JK, et al. Tumours of histiocytes and accessory dendritic cells: an immunohistochemical approach to classification from the international Lymphoma Study Group based on 61 cases. *Histopathology*. 2002;41(1):1-29.
11. Chen X, Zhang L, Wang J, Gu Y, Tuan J, Ma X, et al. Complete response after chemotherapy and radiotherapy of a tonsillar histiocytic sarcoma with regional lymph node involvement: a case report and review of the literature. *Int J Clin Exp Med*. 2015;8(9):16808-12.
12. Baidas S, Tfayli A, Bhargava P. Thalidomide: an old drug with new clinical applications. *Cancer Invest*. 2002;20(5-6):835-48.
13. Gergis U, Dax H, Ritchie E, Marcus R, Wissa U, Orazi A. Autologous hematopoietic stem-cell transplantation in combination with thalidomide as treatment for histiocytic sarcoma: a case report and review of the literature. *J Clin Oncol*. 2011;29(10):e251-3.
14. Bessmertny O, Pham T. Thalidomide use in pediatric patients. *Ann Pharmacother*. 2002;36(3):521-5.
15. Kim YH, Yie GT, Kim NR, Jeon IS, Cho HY, Seok JY, et al. Pediatric intracerebral histiocytic sarcoma with rhabdoid features: Case report and literature review. *Neuropathology*. 2017.
16. Gounder M, Desai V, Kuk D, Agaram N, Arcila M, Durham B, et al. Impact of surgery, radiation and systemic therapy on the outcomes of patients with dendritic cell and histiocytic sarcomas. *Eur J Cancer*. 2015;51(16):2413-22.
17. Chen CJ, Williams EA, McAneney TE, Williams BJ, Mandell JW, Shaffrey ME. Histiocytic sarcoma of the cavernous sinus: case report and literature review. *Brain Tumor Pathol*. 2015;32(1):66-71.
18. Pérez-Ruiz E, Delgado M, Sanz A, Gil AM, Domínguez AR. Primary leptomeningeal histiocytic sarcoma in a patient with a good outcome: a case report and review of the literature. *J Med Case Rep*. 2013;7:127.
19. De Vos FY, Gerding MN, Arends JW, Wegman JJ. Histiocytic sarcoma localised in the thyroid: a case report. *Ann Hematol*. 2008;87(8):681-2.