Case Report

Management of Hard Palatine Fistula Caused by Granulocytic Sarcoma: Case Report

Rasha Aboelhassan[1], Howayda Abdel All[1], Asmaa Mohammed[1], Ahmed Mousa[1], Mohamed Elsayed Hassan[2], Mohamed Abdel Moaty Samra[1], Raafat Abdel Fattah[1]

[1]Nasser Institute Cancer Center, Egypt. [2]Nasser Institute Hospital, Egypt

Abstract

Granulocytic Sarcoma (GS) is a rare condition with a wide list of differential diagnosis and debatable guidelines of treatment in different cancer centers. Most of literature recommended systemic chemotherapy with or without radiation therapy and small role of surgery. One of the rarest sites for myeloid sarcoma is hard palate, which usually worsen the quality of life of the patient due to difficulty in feeding, drinking and speaking. We are reporting a case of hard palatine fistula caused by granulocytic sarcoma, in which we tried to get local control of disease with 3 dimension conformal radiation therapy 3DCRT and surgery with systemic control with chemotherapy using recommendation of multidisciplinary team and targeting mainly patient quality of life

Keywords: granulocytic sarcoma, myeloid sarcoma, palatine fistula, 3DCRT, head and neck, hard palate

Introduction

Granulocytic Sarcoma (GS) is a rare condition that is characterized by the occurrence of one or more tumor masses, consisting of immature myeloid cells presenting at an extra–medullary site.[1] GS was first used to describe an extra–medullary solid destructive tumor mass composed of immature cells of the granulocytic series, but was subsequently used to describe all forms of extra–medullary myeloid leukemia infiltrates, the so called extra–medullary myeloid tumor.[2] Rappaport renamed the tumor as granulocytic sarcoma because the tumor represent immature granulocyte cells and resemble sarcoma.[3]

GS may develop de novo or concurrently with acute myeloid leukemia (AML), myeloproliferative disorder (MPD) or myelodysplastic syndrome (MDS). Interestingly, GS may be the first evidence of AML or precede it by months or years. Finally, it can represent the initial manifestation of relapse in a previously treated AML in remission. [4, 5]

GS is a rare condition which may frequently be misdiagnosed with other conditions with other tumors of myeloid or even lymphoid origin; the rate of misdiagnosis was 75% and most frequently with large cell lymphoma, [6] but recently misdiagnosis is less frequent and became 25–47%. [7, 8]

In a study of 92 cases of myeloid sarcoma, the most common sites were connective tissue and lymph nodes and 27% of these cases has no bone marrow involvement. [9] In another study [10] included 72 cases of isolated myeloid sarcoma the commonest sites were more or less the same including connective tissue and lymphatic tissue, but small intestine, spinal cord, reproductive organs and head were added as frequent sites for GS.

Some cases of GS require surgical treatment, like GS of orbit, anorectal ulcers and others, in which quality of life of the patient can be better after surgical removal of the GS mass or fistula. [11]

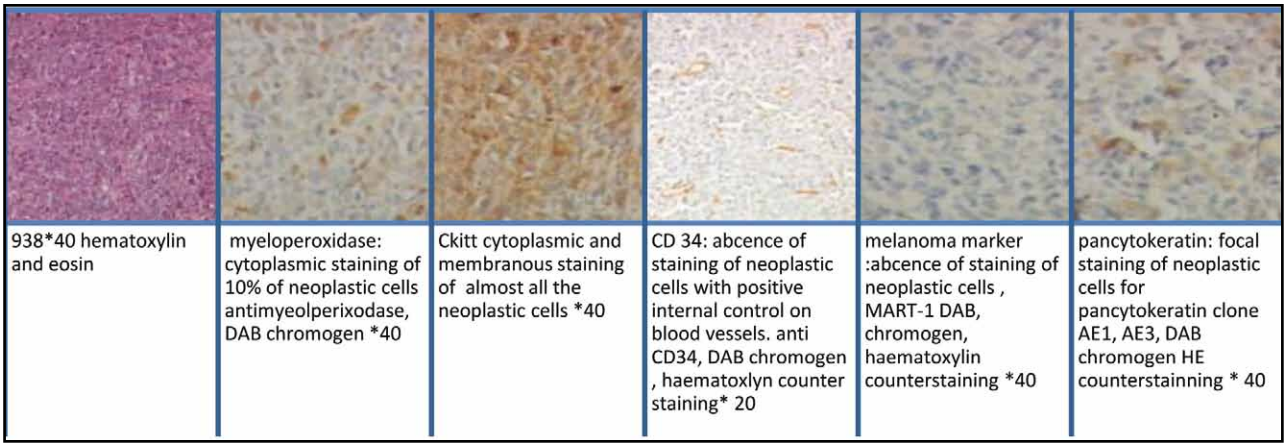
Here we are presenting a rare case of GS of hard palate causing fistula preventing eating and drinking of the patient and worsen her overall quality of life.

Case Report

Clinical history

Female 65 years old patient with no previous history of related acute or chronic illness, presented on May 2015 by red painless swelling of the hard palate with gradual onset and progressive course which was not bleeding but completely adherent to hard palate and showing a small track between hard palate and nose.

Corresponding author: Dr. Rasha Aboelhassan,
Oncology Consultant,
Nasser Institute Cancer Center,
URL: www.nasserinstitute.com,
Email: elsayedonco@hotmail.com



938*40 hematoxylin and eosin	myeloperoxidase: cytoplasmic staining of 10% of neoplastic cells antimyeolperixodase, DAB chromogen *40	Ckitt cytoplasmic and membranous staining of almost all the neoplastic cells *40	CD 34: abcence of staining of neoplastic cells with positive internal control on blood vessels. anti CD34, DAB chromogen , haematoxlyn counter staining* 20	melanoma marker :abcence of staining of neoplastic cells , MART-1 DAB, chromogen, haematoxylin counterstaining *40	pancytokeratin: focal staining of neoplastic cells for pancytokeratin clone AE1, AE3, DAB chromogen HE counterstainning * 40

Figure 1. Immuno– histochemical staining

Clinically the patient had a soft tissue mass 4×5 cm lesion attached to middle part of the hard palate. The lesion was painless and adherent to hard palate with smooth vascular surface and making fistula where food and drinks can pass from mouth to nose worsening patient quality of life.

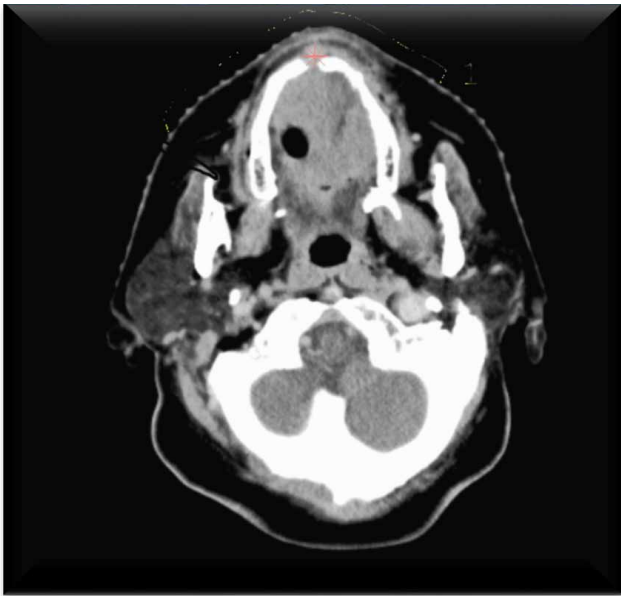
CT examination showed a soft tissue mass lesion at the middle part of hard palate invading it to the nasal floor. (Figures 1, 2)

Pathologically this tumor showed sheets of epithelioid and spindle cells in a prominent vasculature and focal brown pigmentation, IHC showing Pan Cytokeratin and CD 34 and melanin are negative in neoplastic cells, leucocytic common antigen are rare positive, myeloperoxidase 10% positive in neoplastic cells and CD117was 50% positive in neoplastic cells (Figure 1).

Also terminal deoxynucleotidyl transferase was focally positive on neoplastic cells but CD4, CD56, CD20 and CD3 all are negative excluding plasmacytoid dendritic cell neoplasm and also excluding B and T cell lymphomas. Bone marrow biopsy and cytogenetics were done showing no evidence of bone marrow infiltration.

We decided to improve the patient's quality of life at first before beginning with chemotherapy but at the time of diagnosis patient was unfit for chemotherapy so we began 3DCRT with good supportive care aiming to down–stage the mass, healing of fistula and improving patient quality of life.Total dose to planning target volume (PTV) of GTV was 3600 cGY 180 cGY per fraction in 4 weeks; we used 10 MV with 95% of gross target volume covered with dose of 3600 cGY. Patient reached maximum response. (Figures 3, 4).

Patient clinically improved but fistula was still present and she still cannot eat or drink easily but unfortunately, the tumor relapsed within one month of 3DRT, so our combined clinic team decided to give a chance of radical surgery and to be followed by fixation of prosthesis to improve quality of life of the patient.



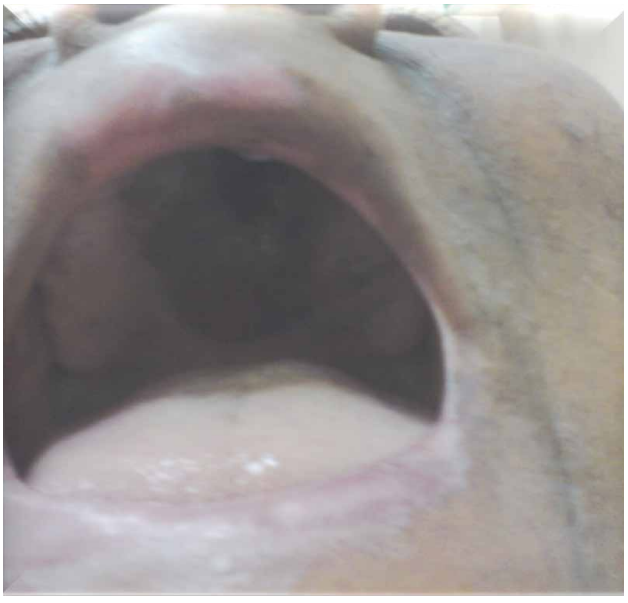


Figure 2. Clinical picture and CT presentation

Total maxillectomy with neck dissection was done showing the same diagnosis. GS with lymph node positive for metastases two out of eleven, and the patient began chemotherapy after improvement of her general condition and her quality of life (Figure 4).

Three months later the patient had second relapse and then she had her second line chemotherapy with partial response, which was followed by disease progression at December 2016 and now she is having best supportive care only.

Discussion

Clinical presentation of GS of head and neck is often non–specific and has a wide range of differential diagnosis. Patients can present with sore throat, jaw pain, sinus pain, skin lesions, enlarged tonsils or lymphadenopathy.

Some cases of GS can mimic pyogenic granuloma, abscess, or other inflammatory processes thereby delaying biopsy and diagnosis. [12]

GS of head and neck like most of head and neck cancers are able to worsen patient's quality of life, in this condition the main target of oncologist is to improve patient's quality of life so he can take cancer therapy to improve survival.

Significant long leukemia free survival time improvement were achieved with the use of chemotherapy in cases of GS, Surgery is generally reserved for cases with acute symptoms (e.g., pain, acute nerve compression), and at times, to obtain an adequate tissue sample following a non–diagnostic fine–needle aspiration. Bakst et al, on other side, showed progression–free survival and overall survival at 5 years to be 39% and 43%, respectively. All of the reports utilized chemotherapy, and only 5 cases surgically excised the tumor. [13–14]

One of the commonest trials that investigated role of radiation therapy in GS of head and neck was conducted by Yu Chen et al on 2013 concluded that the optimum dose of radiation therapy for GS is 20–30 GY to achieve local control but this dose had no effect on complete remission rate which highlight the role of systemic chemotherapy, [15] this can explain occurrence of frequent disease progression and relapse for our patient outside radiation field.

In conclusion: Our patient had a good response to radiation therapy but it was not enough as she had frequent disease progression outside of radiation field, and also she had disease progression outside operative field, which highlight the role of systemic therapy. But unfortunately, she also had disease progression in short period after full course of systemic therapy, giving the suggestion of maintenance therapy for GS to increase time between relapse: progression free survival, and give the chance to maintain better quality of life.

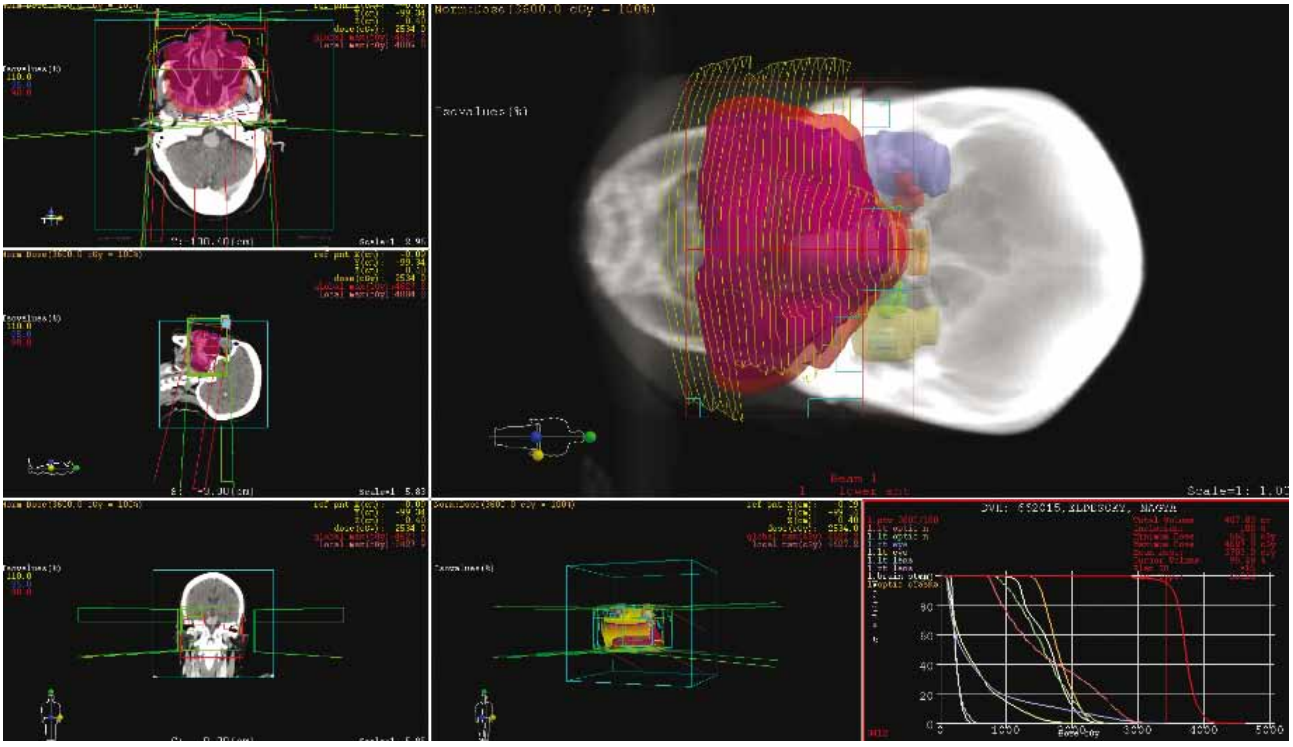


Figure 3. 3DCRT for GS showing to the left transverse, sagittal and coronal beam entrance, and lower middle: 3 D beam entrance, lower right showing dose volume histogram DVH for tumor and risk organs with 95% of dose covering 95% of tumor and upper right picture showing tumor delineation and risk organs.

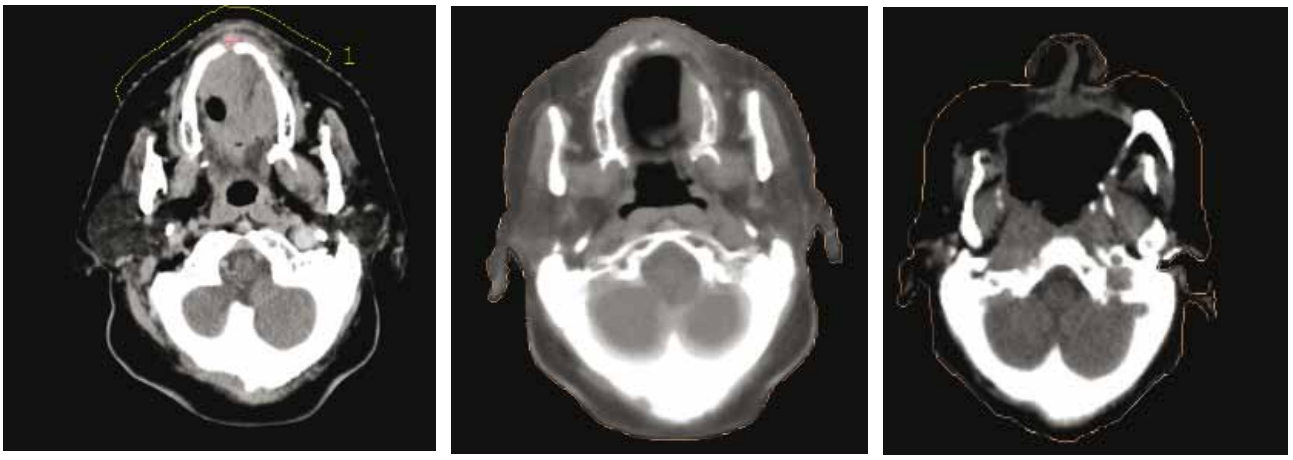


Figure 4. From the left: CT for hard palate tumor at presentation, middle CT after radiation therapy showing maximum response after end of radiotherapy, right: CT after 3 months of maxillectomy with tumor recurrence at the right wing of sphenoid bone.

To our knowledge, management of fistula caused by GS is debatable which may be due to bad prognosis and late presentation of most cases and this need further investigation and cooperation between all branches of medicine

Acknowledgement:

The authors acknowledge the kind cooperation of the patient who agreed to publish her case as a reference for treatment of other cases of the same condition. We also acknowledge the cooperation of staff at Nasser Institute Cancer Center who helped during the treatment of the patient.

Conflict of Interest and Funding

All authors declare that they had no conflicting interest or external funding to conduct this work and prepare this study.

References

1. Jaffe ES, Harris NL, Stein H, Vardiman JW (eds). Pathology and Genetics. Tumours of Haematopoietic and Lymphoid Tissues. Lyon: IARC Press, 2001, pp 104–105
2. Davey FR, Olson S, Kurec AS, Eastman–Abaya R, Gottlieb AJ, Mason DY. The immunophenotyping of extramedullary myeloid cell tumors in paraffin–embedded tissue sections. Am J Surg Pathol 1988; 12: 699–707
3. Rappaport H (1966) Tumors of the hematopoietic system. Atlas of Tumor Pathology, Section III, Fascicle 8. Washington DC: Armed Forces Institute of Pathology 241–243
4. Szomor A, Baranyai F, Tornoczky T, Losonczy H. Penile chloroma in a patient with secondary acute myeloid leukemia. Eur J Haematol 2002; 68: 322
5. Maeng H, Cheong JW, Lee ST, Yang WI, Hahn JS, Ko YW et al. isolated extramedullary relapse of acute myelogenous leukemia as a uterine granulocytic sarcoma in an allogeneic hematopoietic stem cell transplantation recipient. Yonsei Med J 2004; 45: 330–333.
6. Meis JM, Butler JJ, Osborne BM, Manning JT. Granulocytic sarcoma in nonleukemic pa¬tients. Cancer 1986; 58: 2697–2709
7. Antic D, Elezovic I, Milic N, Suvajdzic N, Vidovic A, Perunicic M, Djunic I, Mitrovic M, Tomin D. Is there a ''gold'' standard treatment for patients with isolated myeloid sarcoma? Biomed Phar¬macot 2013; 67: 72–77.
8. Yamauchi K, Yasuda M. Comparison in treat¬ments of nonleukemic granulocytic sarcoma: report of two cases and a review of 72 cases in the literature. Cancer 2002; 94: 1739–1746.
9. Pileri SA, Ascani S, Cox M, Campidelli C, Bacci F, et al. (2007) Myeloid sarcoma: clinicopathologic, phenotypic and cytogenetic analysis of 92 adult patients. Leukemia 21: 340–350.
10. Hamoudi WH, Medeiros LJ, Townsend G, Glassman AB, Bueso–Ramos CE. Acute myelomonocytic leukemia with histologic features resembling sarcomatoid carcinoma in bone marrow. Arch Pathol Lab Med. 2000; 124(2):315–318.
11. Payne, Christopher, et al. "Myeloid sarcoma: a rare case of an orbital mass mimicking orbital pseudotumor requiring neurosurgical intervention." Case reports in neurological medicine 2014 (2014).
12. Papamanthos MK, Kolokotronis AE, Skulakis HE, Fericean AM, Zorba MT, Matiakis AT. Acute myeloid leukaemia diagnosed by intra–oral myeloid sarcoma: a case report. Head Neck Pathol. 2010;4(2):132–135.

13. Yamauchi K, Yasuda M. Comparison in treatments of nonleukemic granulocytic sarcoma: report of two cases and a review of 72 cases in the literature. Cancer. 2002;94(6):1

14. Bakst R, Wolden S, Yahalom J. Radiation therapy for chloroma (granulocytic sarcoma). Int J Radiat Oncol Biol Phys 2012;82:1816–1822739–1746

15. Chen, Wan–Yu, et al. "Clinicopathologic features and responses to radiotherapy of myeloid sarcoma." Radiation Oncology 8.1 (2013): 1.