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Testicular Plasmacytoma as Initial Presentation of Multiple Myeloma

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Abstract
We report the case of a 47-year-old man who presented with vague abdominal pain for 3 months and a painless left testicular mass with ultrasonography features suspicious of malignancy. Histopathology of high inguinal orchiedectomy specimen suggested testicular plasmacytoma. Patient on further evaluation was diagnosed as Multiple myeloma.
Keywords: *Extramedullary plasmacytomas (EMP), multiple myeloma.*

Introduction

Testicular plasmacytomas may occur as a solitary plasmacytoma, as a recurrence of multiple myeloma, or concurrently in an active myeloma Multiple myeloma is a neoplastic disease accounting for approximately 10% of all hematologic malignancies[1] . It normally presents with widespread marrow involvement but sometimes may present in extramedullary forms.

Extramedullary plasmacytomas (EMPs) have been reported in a variety of locations, mostly in the respiratory tract, but rarely in testicles.

Most reported cases of testicular plasmacytomas have been in either of two settings: as the site of recurrence of multiple myeloma or as a symptomatic mass in the initial presentation of myeloma.

We report the case of a 47-year-old man with no prior history of multiple myeloma who presents with abdominal pain and uremic symptoms. During routine workup, an incidental finding of a non-symptomatic testicular plasmacytoma was discovered. This case is discussed with a review of the literature

Case Report

A 47 year old male patient presented with complaints of vague upper abdomen pain for 3 months associated with loss of appetite and fatigue for 2 months. Local examination of external genitalia revealed left testicular painless mass. Neurological examination was normal along with other systemic examination. On further evaluation laboratory parameters revealed deranged renal function (blood urea 178, serum creatinine 26.7mg/dL).

Ultrasonography of scrotum showed a well defined hypoechoic lesion measuring 3.2×2 cm with internal vascularity and mild free fluid in left tunica vaginalis sac, suspicious of neoplasm. β

HCG and LDH levels were raised ..Patient underwent high inguinal orchidectomy in view of suspected diagnosis of testicular neoplasm. Histopathology showed infiltrating neoplasm composed of cells arranged in diffuse pattern with little stroma. Neoplastic cells appeared as monomorphic round cell with moderate cytoplasm and round eccentric nucleus with dispersed chromatin with invasion of tunica vaginalis and seminiferous tubules by neoplastic cells, suggestive of plasmacytoma. On further evaluation skeletal survey revealed lytic lesions in skull & pelvis (fig 1 & 2). Serum protein electrophoresis revealed marginal increase of alpha 1 globulin levels, moderates increase of beta globulin levels. Bone marrow biopsy was inconclusive. Peripheral smear was normocytic, normochromic anemia with neutrophilic leukocytosis. Serum immunoglobulin assay revealed increased kappa free light chain & lambda free light chain ,β2 macroglobulin levels and low kappa lambda ratio suggestive of multiple myeloma. Patient underwent radiotherapy to the vertebra, chemotherapy with bortezomib, dexamethasone, and cyclophosphamide .

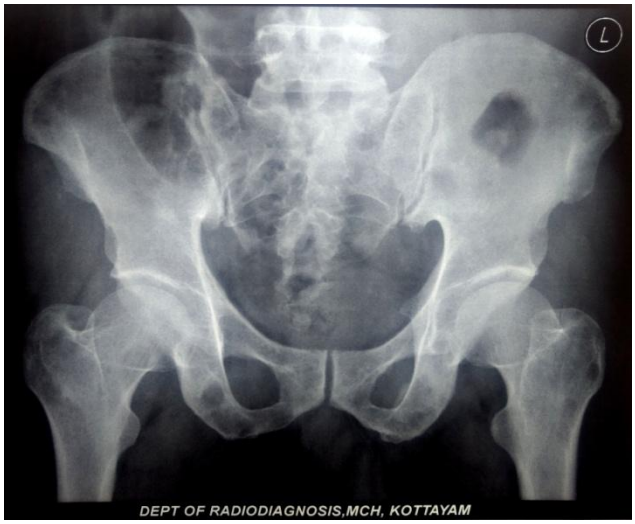

Fig 1: X-Ray Suggestive of Lytic Lesion in Left Pelvis

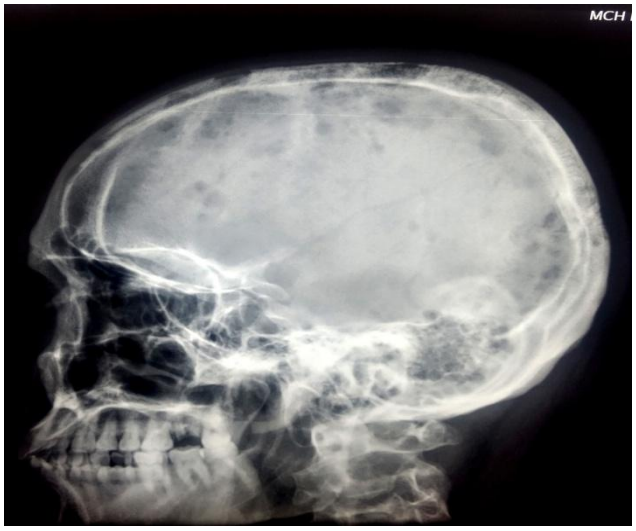

Fig 2: Punched Out Defects in Skull

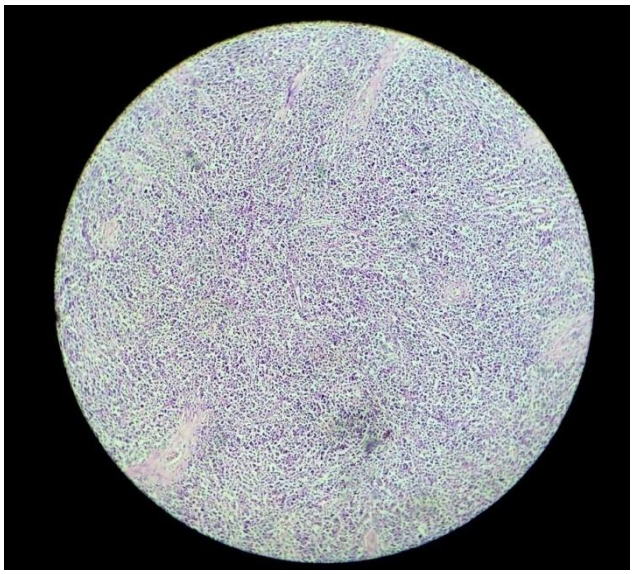

Fig 3: Microscopic image of testis (low power)

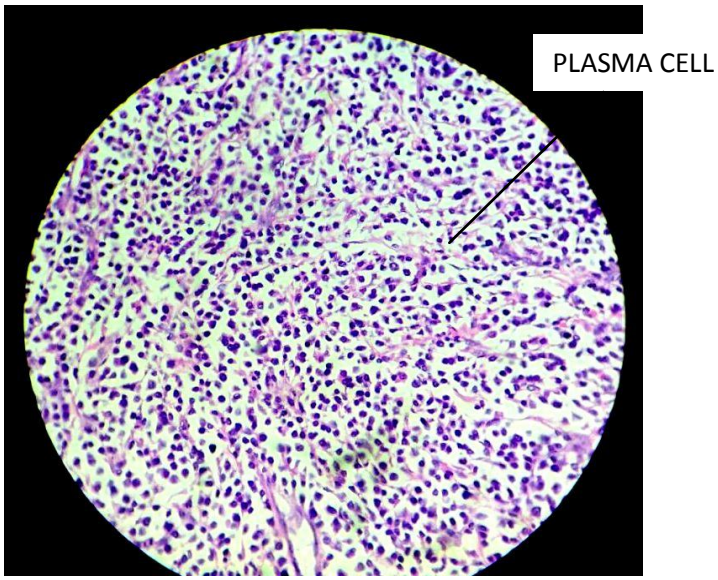

Fig 4: High Magnification Slide Image of Tumour Showing Plasma Cells

Discussion

Plasma cell neoplasms are divided into two different categories: multiple myeloma and solitary plasmacytoma. Solitary plasmacytomas are most commonly found in the bone, however they can also be extramedullar (EMP). Ninety percent of all EMPs are found in the head and neck region, particularly the upper respiratory and digestive tracts. Other locations include the gastrointestinal tract, central nervous system, skin and, rarely, the testis. EMPs account for only 3% of plasma cell malignancies.

Extramedullary plasmacytomas (EMPs) are collections of neoplastic plasma cells that occur outside of the bone marrow. In a study of 869 cases of extramedullary plasmacytomas unrelated to myeloma, it was discovered that around 16% of EMPs eventually transform in multiple myeloma, with most transformations happening in the first two years following diagnosis[1]. The incidence of EMPs varies depending on the study. In histological analysis at autopsy of patients with myeloma, Weitzner reported the incidence of extramedullary plasmacytoma ranging from 11 and 73%[2] . In autopsy studies, Hayes et al. found microscopic disease in the liver, spleen, and lymph nodes in 70% of these patients, but reported that gross extramedullary plasmacytoma in other locations were much less common and rarely affected more than one anatomical site[3].

Overall, 65 and 71% of myeloma patients have some form of extramedullary plasmacytoma [3],[4],[5]. Generally the prognosis of EMP without evidence of multiple myeloma is good with 5-year survival rates as high as 70% and median survival time around 8 years[6],[7]. In general, EMPs outside of the head and neck locations have a poorer prognosis[8]. EMPs in the case of multiple myeloma have a far worse prognosis and the presence of EMP in the testicles is considered evidence of extensive disease.

Testicular plasmacytomas, can be the first manifestation of multiple myeloma, evidence of recurrence of myeloma, or a rare location of a plasma cell dyscrasia , mostly discovered on autopsy . Isolated testicular plasmacytomas are rare entity. The mean age of diagnosis is 55 to 60 years, with a male to female ratio of two to one [1-3]. The diagnosis of EMP requires studies including complete and differential blood counts with peripheral smears, complete metabolic panel, serum protein electrophoresis with immunofixation of immunoglobulin, biopsy of the lesion, bone aspiration and biopsy, and metastatic bone survey by positron emission tomography (PET) with computed tomography (CT) or magnetic resonance imaging (MRI).

By definition, patients with extramedullary plasmacytoma cannot have symptoms of multiple myeloma including anemia, hypercalcemia, or renal insufficiency. The lesion should have evidence of clonal plasma cells, and the bone marrow biopsy must contain no clonal plasma cells. Some patients may have small amounts of monoclonal protein, usually IgA, in the serum or urine. The treatment of these tumors is either radiation therapy or surgical resection. Adjuvant radiation or chemotherapy does not improve the outcome. In patients with incomplete resection, local radiation is the best treatment. Less than 10% of patients develop local recurrence. These patients have high rates of progression to multiple myeloma, up to 15%[11]. The overall 10-year survival for patients with EMP is 70%.

Isolated testicular plasmacytoma accounts for only 0.03- 0.1% of all testicular tumors[9],[11]. First operated specimen was reported probably in 1954[12] . Only 71 cases documented till 2008 [6] with the first case documented in 1939 [13] .In a study by Haynes et al on 61 cases of EMP, one had testicular involvement[3]. According to a study review of 6,000 tumors in the American Testicular Tumor Registry, 7 were reported to be plasmacytomas[14]. Our case is therefore unusual due to the primary nature of the plasmacytoma within the testis.

Studies report that the overall incidence of testicular extramedullary plasmacytoma in multiple myeloma is between 0.6 and 2.7% and

the incidence of testicular plasmacytomas being 0.03–0.1% of all testicular tumors [3],[14], [15] .

The incidence of plasmacytoma increases with age[16]. Patients usually present with a firm testicular mass, which may or may not be tender. Patients with disseminated disease may present with symptoms of multiple myeloma such as back pain. On ultrasound, plasmacytoma of the testicle can be either homogeneous or heterogeneous, and typically hypoechoic and hyperemic on Doppler imaging[16], [17].

On gross examination, the tumors are soft, fleshy, and white or grey in color[18] .Microscopically, the tumor appears as sheets of atypical plasma cells with varying degrees of differentiation [17]. Plasmacytomas can be mistaken for other types of tumors, including seminoma, lymphoma and metastatic melanoma[10],[19]. In order to make accurate diagnosis, immunologic staining for CD 138, CD 79a and monoclonal antibody VS 38 can be used[4] . Additionally, immunostaining will reveal IgG, IgD or IgA light chains; IgA being the most common [7] . The treatment of choice for testicular plasmacytoma is high inguinal orchiectomy. In addition, these tumors are highly radiosensitive so a combination of surgery and radiation can be implemented. For patients with residual disease after surgery, or recurrent or refractory disease, radiation can be used as well[19] There has been debate concerning whether testicular EMP is a separate entity or if it is part of multiple myeloma, but it is now widely accepted that testicular plasma-cell neoplasia is a local manifestation of a systemic disease process [14],[20],[21].

There are fewer reports in the literature of testicular plasmacytomas at initial presentation of multiple myeloma[6],[11],[12]. Anghel et al. in a review of 34 cases of testicular plasmacytomas from 1939 to 2002 reported that 14 patients had a previous diagnosis of multiple myeloma, 6 had had a primary extramedullary plasmacytoma, 1 had bone lytic lesions and extramedullary plasmacytoma, and 4 had another extramedullary plasmacytoma at presentation of the testicular plasmacytoma[9]. Other studies have concluded that overall survival of patients with extramedullary plasmacytoma of the testicle is poor, with overall survival following orchiectomy to be between 5 weeks and 48 months[28] and with 59% of patients with testicular plasmacytomas succumbing to the disease between 9 days and 26 months despite orchiectomy, radiotherapy, and chemotherapy[9]. Our patient presented with incidental finding of a testicular mass, plasmacytoma was discovered. Further post op evaluation revealed the diagnosis of multiple myeloma. The overall prognosis for patients with testicular plasmacytoma is poor, with high rates of progression to multiple myeloma. Because of the high rates of progression, these patients require close monitoring and long-term surveillance. There are no established guidelines as to which tests are appropriate for surveying for metastatic disease, or for the frequency or duration of surveillance. A common approach includes a combination of periodic history and physical exam, laboratory tests (urine and serum protein electrophoresis with immunofixation, CBC, serum creatinine, serum calcium) and imaging such as PET with or without CT or MRI at lengthening intervals.

Conclusion

Extramedullary plasmacytoma is a rare form of plasma cell neoplasm ,with testes being a rare site. When plasmacytomas occur in the testis, the diagnosis can be difficult. Plasmacytomas often mimic common causes of testicular mass, and require multiple diagnostic tests for accurate diagnosis. Plasmacytomas usually present concurrently with multiple myeloma, but can present as an isolated tumor. Patients with isolated plasmacytoma have high rates of progression to multiple myeloma later in life. For this reason, it is important to accurately diagnose plasmacytoma and survey these patients appropriately for progression to disseminated disease. Plasmacytoma of the testicle though rare, is an

important disease to consider in patients presenting with testicular mass.

References

1. C. Alexiou, R. J. Kau, H. Dietzfelbinger et al., "Extramedullary plasmacytoma: tumor occurrence and therapeutic concepts," Cancer, vol. 85, no. 11, pp. 2305–2314, 1999
2. S. Weitzner, "Metastatic plasma cell myeloma in testis. Report of a case and review of the literature," Rocky Mountain Medical Journal, vol. 66, no. 9, pp. 48–50, 1969.
3. D. W. Hayes, W. A. Bennett, and F. J. Heck, "Extramedullary lesions inmultiplemyeloma; review of literature and pathologic studies," A. M. A. Archives of Pathology, vol. 53, no. 3, pp. 262–272, 1952.
4. S. B. Kapadia, "Multiple myeloma: a clinicopathologic study of 62 consecutively autopsied cases," Medicine, vol. 59, no. 5, pp. 380–392, 1980
5. M. W. Pasmantier and H. A. Azar, "Extraskeletal spread in multiple plasma cell myeloma. A review of 57 autopsied cases," Cancer, vol. 23, no. 1, pp. 167–174, 1969
6. Y. M. Wang, F. Y. Li, J. D. Luo, J. Li, L. P. Xie, and G. S. Yang, "Testicular plasmacytoma: a case report and review of the literature," Chinese Medical Journal, vol. 121, no. 10, pp. 956–958, 2008
7. L. A. Fernandez, S. Couban, R. Sy, and R. Miller, "An unusual presentation of extramedullary plasmacytoma occurring sequentially in the testis, subcutaneous tissue and heart," American Journal of Hematology, vol. 67, no. 3, pp. 194–196, 2001
8. J. White and Y. F. Chan, "Solitary testicular plasmacytoma," British Journal of Urology, vol. 75, no. 1, pp. 107–108, 1995
9. Anghel G, Petti N, Remotti D, Ruscio C, Blandino F, Majolino I: Testicular plasmacytoma: report of a case and review of the literature. Am J Hematol 2002, 71(2):98-104
10. Hou TY, Dai MS, Kao WY: Testicular plasmacytoma with bone dissemination without medullary plasmacytosis. Ann Hematol 2003, 82(8):518-520
11. Turk HM, Komurcu S, Ozet A, Kuzhan O, Gunhan O: An unusual presentation of extramedullary plasmacytoma in testis and review of the literature. Med Oncol 2010, 27(4):1378-1380
12. Melicow MM, Cahill GF: Plasmacytoma (multiple myeloma) of testis: A report of four cases and review of the literature. J Urol 71:103-113, 1954
13. H. Ulrich, "Multiple myeloma," The Archives of Internal Medicine, vol. 64, article 994, 1939
14. H. S. Levin and F. K. Mostofi, "Symptomatic plasmacytoma of the testis," Cancer, vol. 25, no. 5, pp. 1193–1203, 1970
15. G. Chica, D. E. Johnson, and A. G. Ayala, "Plasmacytoma of testis presenting as primary testicular tumor," Urology, vol. 11, no. 1, pp. 90–92, 1978
16. Dores GM, Landgren O, McGlynn KA, Curtis RE, Linet MS, Devesa SS: Plasmacytoma of bone, extramedullary plasmacytoma, and multiple myeloma: incidence and survival in the United States, 1992-2004. Br J Haematol 2009, 144(1):86-94
17. Walker FB, Bluth EL, Kenney A, Beckman EN: Plasmacyoma of the testis. J Ultrasound Med 2005, 24(12):1721-1725
18. Rosenberg S, Shapur N, Gofrit O, Or R: Plasmacytoma of the testis in a patient with previous multiple myeloma: is the testis a sanctuary site? J Clin Oncol 2010, 28(27):456-458

19. Tanagho Y, Stovsky M, Maclennan GT: Testicular plasmacytoma. J Urol 2010, 184(3):1161-1162
20. M. Alvarez-Mugica, A. Jalon Monzon, V. Bulnes V´azquez et al., "Secondary testicular plasmocytoma," Archivos Espa˜noles de Urolog´ıa, vol. 60, no. 1, pp. 99–102, 2007
21. E. Wiltshaw, "The natural history of extramedullary plasmacytoma and its relation to solitary myeloma of bone and myelomatosis," Medicine, vol. 55, no. 3, pp. 217–238, 1976
22. A.M.Avitable, P. Hanno, T. S. Gansler, M. I. Goldwein, and J. E. Tomaszewski, "Testicular plasmacytoma," Urology, vol. 34, no. 1, pp. 51–54, 1989