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Case Report

SUBDURAL HEMATOMA SECONDARY TO BRAIN METASTASIS IN A PROSTATE CANCER: A CADAVERIC FINDING

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ABSTRACT

Brain metastasis is rare occurrence with metastatic prostate cancer whereas bones, lung, pleura are the most common organs to be involved. During our cadaver dissection, it was found that the patient had a subdural hematoma secondary to brain metastasis as a result of metastatic prostate cancer. The case report presents with the dissection of Brain showing clear cut midline shift and Obliteration of anterior and posterior horn of ventricles. The symptoms in brain metastasis may not occur initially but may appear in late involvement. Sub-Dural hematoma is of common occurrence in andropause age group especially who are receiving anti-coagulants or had minor head injury. The incidence of brain metastases may be increasing due to better imaging techniques. In such patients, use of anti-coagulants, anti-platelets or anti-VEGF therapy can increase the risk of intracranial hemorrhage hence used with caution.

KEY WORDS: Anticoagulants, Intracranial Hemorrhages, Metastasis, Prostate cancer, Subdural hematoma.

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INTRODUCTION

Among the various types of cancer existing today, prostate cancer is one of the highest leading causes of death. Prostate cancer can occur locally or spread systemically via metastasis to numerous extremes. The most common sites for prostate cancer metastasis are the lymph nodes and bones and occur less frequently in the lungs, liver and adrenal gland and much rarer in brain [1].

During our cadaver dissection, a known case of metastatic prostate cancer, it was found that the Subject had a subdural hematoma presumed secondary to brain metastasis as a result of prostate cancer. In fact it is predominant that metastasis to the brain are extremely rare, occurring in only 1%-2% of patients with prostate cancer [2]. Additional findings of a subdural hematoma presents us with a unique combination of findings which have rarely been ubiquitous.

CASE REPORT

During Head and Neck dissection of this 70 year old, male cadaver, after removal of cranial vault,

we found Dura mater which was intact with meningeal vessels. When we removed Dura mater, we noticed subdural hematoma on right side of the cerebrum. Transverse sections of the brain would give us good information of the extent of hematoma and mid line shift. In transverse section of the brain, we saw that hematoma has pushed the cerebral cortex of the affected side causing obliteration of lateral ventricle with midline shift. Pictures taken in transverse section (Fig. 1) clearly shows midline shift and obliteration of lateral ventricle because of hematoma formation. The probability of a patient having metastatic prostate cancer with brain metastasis resulting in subdural hematoma is quiet rare. However here in our findings, both abnormalities are present. Generally these findings go unnoticed when patients are alive, and can be incidentally found during cadaver dissections.

Fig. 1: Midline shift and obliteration of lateral ventricle because of hematoma formation.

DISCUSSION

Prostate cancer is the cancer of a gland in the male reproductive system called as prostate. It secretes a fluid called as seminal fluid that makes up majority of the semen. However this cancer is slow growing, but can grow relatively quickly in some which was published in world cancer report [3]. Metastatic prostate cancer can spread to other parts of the body; especially bones and lymph nodes [4]. However symptoms may not occur during initial stages but in later stages it may cause frequent urination, difficulty in urination or presence of blood in the urine. Urination can also be associated with pelvic pain. Prostate Cancer could be genetic in origin which can be evidences by men with first degree relative who has prostate cancer has higher chance of getting prostate cancer than a normal person. Men in those who have both the first degree relatives being affected has a fivefold increased risk of having prostate cancer than the normal men [5].

The most common source of the metastasis of the prostate cancer is the bone (90%), lung (46%), liver (25%), pleura (21%), and adrenal gland (13%) [6]. However metastasis to the brain are uncommon, it accounts for only 1.9% of all the metastatic prostate cancer [7]. The cancerous cells metastasize to brain through paravertebral venous plexus which proposed by Batson [8]. Men with prostate cancer that metastasized to brain were younger than the men with prostate cancer with no metastasis [2]. Even in metastasis to the brain, the common sources in the brain are leptomeninges (67%), cerebrum (25%), and cerebellum (8%) [9]. However, clinically the metastasis to the leptomeninges in the brain are asymptomatic, but it can affect multiple systems in body [10].

Metastasis of prostate adenocarcinoma to the Dura mater and adjacent parenchyma is very rare phenomenon only occurring in 1 to 2 of all cases where metastatic of the prostate cancer does occur. Making its way from the prostate to the brain via the venous drainage system through the lower Batson's plexus metastasizing to the brain in 60 months from the onset of the spread [11]. Incidence of brain metastases may be increasing, due to improved detection of small metastases by magnetic resonance imaging (MRI) [12].

Prostate Metastasis causing subdural hematoma will coincide with a midline shift, as seen in our case, brought about by the buildup of blood resulting in the beginning stages, minor neurological problems such as balance, unilateral headaches, leading to extreme cases; a coma. Cause of death in this 70 year old deceased male was due to Metastatic prostate cancer, as per the records but the Incidental finding of subdural hematoma explains additional

factor towards his cause of death.

Chronic subdural hematoma (CSDH) a regular occurrence in the andropause and menopause age group, who are on receiving anticoagulants and/or following minor cranial trauma [13]. Often occurring when the tiny veins between the surface of the brain and the Dura mater, its outer covering, stretch and tear, allowing blood to collect between the brain and the Dura mater. Often in the elderly these veins are often already in a weakened state, already stretched because of brain atrophy (shrinkage) and are more easily injured [14]. In such patients, use of anti-coagulants, anti-platelets or anti-VEGF therapy can increase the risk of intracranial hemorrhage hence used with caution.

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REFERENCES

[1]. Craig J, Woulfe J, Sinclair J, & Malone S Isolated brain metastases as first site of recurrence in prostate cancer: Case report and review of the literature. Current Oncology 2015;22(6):493.

[2]. Tremont-Lukats IW, Bobustuc, G, Lagos, GK, Lolas K, Kyritsis, AP and Puduvalli, VK Brain metastasis from prostate carcinoma. Cancer 2003;98:363-368.

[3]. World Cancer Report 2014. World Health Organization. 2014.

[4]. Ruddon, Raymond W Cancer biology (4th ed.). Oxford: Oxford University Press. 2007; p. 223.

[5]. Steinberg GD, Carter BS, Beaty TH, Childs B, Walsh PC. Family history and the risk of prostate cancer. Prostate 1990;17(4):337–47. doi:10.1002/pros.2990170409.

[6]. Bubendorf L, Schopfer A, Wagner U, Sauter G, Moch H, Willi N, et al. Metastatic patterns of prostate cancer: an autopsy study of 1,589 patients. Hum Pathol 2000;31(5):578–83.

[7]. Catane R, Kaufman J, West C, Merrin C, Tsukada Y and Murphy GP Brain metastasis from prostatic carcinoma. Cancer 1976;38:2583-2587.

[8]. Batson V The function of the vertebral veins and their role in the spread of metastases. Ann. Surg. 1940;112:138-149.

[9]. Lynes WL, Bostvick DG, Freiha FS, Stamey TA Parenchyma brain metastases from adenocarcinoma of prostate. Urology 1986;28:280-7.

[10]. Balm M, Hammack J Leptomeningeal carcinomatosis. Presenting features and prognostic factors. Arch Neuro 1996;53:626-32.

[11]. Ramsis Benjamin Neurologic Complications of Prostate Cancer, Am Fam Physician. 2002; 65(9):1834-1841.

[12]. Wen PY, Loeffler JS Management of brain metastases. Oncology (Williston Park) 1999; 13:941.

[13]. Muhammad Asghar, Vedamurthy Adhiyaman, MW Greenway, Bhimal K Bhowmick, A Bates Chronic subdural haematoma in the elderly—a North Wales experience. J R Soc Med 2002;95(6):290–292.

[14]. Marx JA ed. Rosen's Emergency Medicine: Concepts and Clinical Practice. 7th ed. Philadelphia, PA: Elsevier Mosby 2009; chap 38.345

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