

## Epididymis metastasis in adenocarcinoma lung: A rare entity

Shabnum Thakur<sup>1</sup>, Manish Gupta<sup>2</sup>, Vikas Fotedar<sup>3</sup>

From <sup>1</sup>Senior Resident, <sup>2</sup>Professor, <sup>3</sup>Associate Professor, Department of Radiotherapy and Oncology, Indira Gandhi Medical College and Hospital, Shimla, Himachal Pradesh, India

**Correspondence to:** Dr. Shabnum Thakur, Department of Radiotherapy and Oncology, Indira Gandhi Medical College and Hospital, Shimla, Himachal Pradesh, India. E-mail: thakurshabnum7@gmail.com

Received - 04 March 2020

Initial Review - 19 March 2020

Accepted - 08 April 2020

### ABSTRACT

Testicular neoplasms constitute for only 1% of all malignancies. Testicular metastasis are seldom seen. A testicular metastasis classically presents as a complication of progressive disease or as a primary sign of malignancy. Excluding lymphoma and leukemia, prostate cancer is the most frequent primary site that metastasizes to the testes. Testicular metastasis resulting from adenocarcinoma of the lung have rarely been reported in the literature. Here, we are reporting a case of adenocarcinoma lung with metastasis to the epididymis. Histopathological examination confirmed that this was an epididymis metastasis of adenocarcinoma having origin from the lung.

**Key words:** Adenocarcinoma, Chemotherapy, Radiation

Adenocarcinoma is a carcinoma that begins in the cells of glands. The majority cancers of breast, pancreas, prostate, and colon are also adenocarcinomas. The only adenocarcinoma that commences in the lungs is considered carcinoma lung [1]. Lung adenocarcinoma constitutes about 40% of all lung cancers [1]. It is more often in women and has the propensity to grow larger than other lung cancers. Most people who developed adenocarcinoma lung are non-smokers [2].

Adenocarcinoma is a subtype of non-small cell lung cancer. It tends to develop in smaller airways such as bronchioles and is usually located more along the outer edges of the lungs [3]. Glandular cells are found in the lungs and some other internal organs. The most perpetual primary site that metastasizes to the testes is the prostate accede to the lung [4]. However, there are few reports of testicular metastasis originating from squamous cell carcinoma of the lung [1,5]. There have been meager case reports depicting metastasis of adenocarcinoma lung to the epididymis.

### CASE REPORT

A 45-year-old male presented with complaints of shortness of breath and painless bilateral scrotal swelling. Shortness of breath was insidious in onset and gradually progressive for the past 6 months. Furthermore, the scrotal swelling had been incidentally detected 3 months earlier and had gradually increased in size.

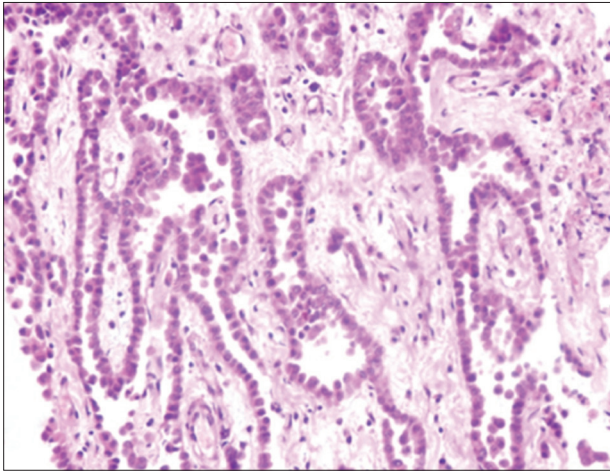
On examination, the patient is conscious, cooperative, and well-oriented to time, place, and person. All vitals were stable. On general physical examination, there was no pallor/icterus/clubbing/cyanosis, or lymphadenopathy. The central nervous system and systemic examination were within normal limits.

The local examination revealed a 10 × 7 cm palpable swelling in the right scrotum. The swelling was soft, cystic, and non-tender, whereas palpable mass in the left scrotum was firm to hard in consistency.

Blood investigations, including serum human chorionic gonadotropin, were normal and the chest X-ray showed opacity in the right hemithorax with compression of the right trachea and the right-sided main bronchus. Contrast-enhanced computed tomography thorax was done, which gave an evidence of abnormal fluid density in the right pleural space with underlying subsegmental collapse consolidation and mild left pleural effusion (PLEF). Ultrasound of the scrotal area was done, which was suggestive of bilateral hydrocele with a mass in the epididymal head.

The biopsy was done from the lung which was suggestive of adenocarcinoma. For scrotal swelling, the right Jaboulay's procedure with partial excision of the sac was also done. Microscopic findings show tumor epithelial cells lining tubules and tubulopapillary structures separated by fibrous stroma revealing myxoid change. The tumor cells are polygonal with round/slightly irregular vesicular nuclei, prominent nucleoli, frequent nuclear grooves, occasional intranuclear inclusions, a moderate amount of dense eosinophilic cytoplasm, and bulging dome-like apical portion. Occasional tumor cells reveal intracytoplasmic vacuoles. Signet ring cells are also seen. Detailed histopathology of the epididymal head mass was suggestive of metastatic adenocarcinoma (Fig. 1).

The patient was treated as the primary carcinoma lung with secondary epididymis with six cycles of pemetrexed and carboplatin-based chemotherapy followed by erlotinib and kept



**Figure 1:** Microscopic findings show tumor epithelial cells lining tubules and tubulopapillary structures separated by fibrous stroma revealing myxoid change. The tumor cells are polygonal with round/slightly irregular vesicular nuclei, prominent nucleoli, frequent nuclear grooves, occasional intranuclear inclusions, moderate amount of dense eosinophilic cytoplasm, and bulging dome such as apical portion

on follow-up. Positron emission tomography was also done suggestive of non-fluorodeoxyglucose avid right-sided PLEF with the collapse of the right middle lobe, right lower lobe, and the segmental collapse of the right upper lobe. The subcentimetric hypodense lesion is noted in segment VI of the liver. The patient was admitted and managed conservatively and kept on 2 monthly follow-ups and is perfectly fine from the past 12 months.

## DISCUSSION

Testicular metastases are explicitly rare. In a large retrospective study of 738 autopsies of adult males with solid malignancies, only 5 (0.68%) were exhibit to have testicular metastases [6]. Its incidence amidst all testicular tumors varies between 0.8 and 2.3% [7]. Patel *et al.* [5] reported 209 cases of testicular metastases that were primarily identified from an autopsy series and prostate cancer cases from patients who underwent orchiectomy for hormonal therapy. Out of the 209 cases reviewed, only 13 (6%) presented with a testicular tumor, and none of these patients had lung cancer. In these cases, prostate tumors were the most common primary (34.6%) followed by the lung carcinomas (17.3%) [5].

Pathologically, the testicular metastases have been described in the literature as a focal nodule, more commonly located in the epididymis and para-epididymal zone or as diffuse involvement occupying the interstitium with relative sparing of the seminiferous tubules, a characteristic feature of secondary testicular tumors [8]. Occasionally, however, atrophic seminiferous tubules may be partially or totally invaded by the tumor depending on the patient age and stage of the disease. Vascular and lymphatic invasion of the parenchyma and tunica are another characteristic feature of metastatic tumors as opposed to primary tumors of the testicles. The putative route of spread described in the literature is hematogenous (arterial embolization) for the lung cancer [9].

The reason why testicular metastases are so rare is unknown [10]. Several metastasis routes have been postulated for the testes, including a direct invasion from the adjacent lesions, retrograde venous embolism, arterial embolization, retrograde lymphatic extension from para-aortic lymph nodes, transperitoneal seeding through a congenital hydrocele, or retrograde extension from the vas deferens [11]. On disseminating to the testicle, the lower temperature of the intrascrotal contents may impede the ability of the metastatic tumors to become established. The metastatic process consists of several steps. It requires the invasion from the primary tumor, intravasation, survival, arrest, and extravasation out of the circulatory system, and colonization of a distant site [12]. In addition, tumor cells may develop the capacity to preferentially colonize particular organs. Theoretically, organ-specific metastasis may result from miscellany of mechanisms. First, tumor cell ambush may occur due to tumor cell arrest based on the pattern of blood flow from the primary tumor to the first capillary bed and the ability of the tumor cells to form aggregates. Second, specific adhesive interactions may occur between tumor cells and the endothelia of certain organs. Finally, the microenvironment of a distant organ may generate tumor cell niches or a permissive site for metastatic cells to colonize [12].

Buck *et al.* [13]. also reported a case of testicular metastasis in a patient of squamous cell carcinoma of the lung, it was a Stage IV patient presented with brain metastasis subsequently came up with testicular mass, further detailed evaluation, including orchiectomy and detailed histopathological examination along with immunohistochemistry, confirms that the secondary came from the lung.

## CONCLUSION

Metastatic carcinoma to the testis is an extremely rare but interesting phenomenon. A variety of neoplasms have been reported to involve the testis metastatically. The most common differential diagnostic problem when patients present with testicular metastasis without a prior diagnosis of underlying primary malignancy is distinguishing a testicular mass from a hydrocele or varicocele. The over-all clinical significance of testicular metastasis and its specific prognostic importance is unclear. Although metastasis to the testis is uncommon, it should be considered in the differential diagnosis of a testicular mass, particularly in a patient known to have a malignancy. Further, the diagnostic evaluation should be individualized in suspicious situations. Testicular ultrasonography is helpful to differentiate hydroceles and varicoceles from solid masses.

## REFERENCES

1. Noguchi M, Morikawa A, Kawasaki M. Small adenocarcinoma of the lung. Histologic characteristics and prognosis. *Cancer* 1995;75:2844-52.
2. Olak J, Colson Y. Gender differences in lung cancer: Have we really come a long way, baby? *J Thorac Cardiovasc Surg* 2004;128:346-51.
3. Travis WD, Travis LB, Devesa SS. Lung cancer. *Cancer* 1995;75:191-202.

4. Grignon DJ, Shum DT, Hayman WP. Metastatic tumours of the testes. *Can J Surg* 1986;29:359-61.
5. Patel SR, Richardson RL, Kvols L. Metastatic cancer to the testes: A report of 20 cases and review of the literature. *J Urol* 1989;142:1003-5.
6. Garcia-Gonzalez R, Pinto J, Val-Bernal JF. Testicular metastases from solid tumors: An autopsy study. *Ann Diagn Pathol* 2000;4:59-64.
7. Kaplan MA, Kucukoner M, Inal A, Urakci Z, Firat U, Komek H, *et al.* Testicular mass: An initial sign of squamous cell carcinoma of the lung. *World J Oncol* 2012;3:291-3.
8. Potts IF. Symptomless metastasis to testis from carcinoma of the prostate. *Med J Aust* 1953;1:144-5.
9. Willis RA. *The Spread of Tumors in the Human Body*. 2<sup>nd</sup> ed. London: Butterworth and Co.; 1952. p. 287.
10. Rosser CJ, Gerrard E. Metastatic small cell carcinoma to the testis. *South Med J* 2000;93:72-3.
11. Meares EM, Ho TL. Metastatic carcinomas involving the testis: A review. *J Urol* 1969;102:465-8.
12. Palmieri D, Chambers AF, Felding-Habermann B, Huang S, Steeg PS. The biology of metastasis to a sanctuary site. *Clin Cancer Res* 2007;13:1656-62.
13. Buck DA, Byrd RH, Holmes CL, Pollock T. Testicular metastasis in a case of squamous cell carcinoma of the lung. *Case Rep Oncol* 2015;8:133-7.

*Funding: None; Conflict of Interest: None Stated.*

**How to cite this article:** Thakur S, Gupta M, Fotedar V. Epididymis metastasis in adenocarcinoma lung: A rare entity. *Indian J Case Reports*. 2020;6(4):202-204.

Doi: 10.32677/IJCR.2020.v06.i04.017