



Seminoma in Retroperitoneal Undescended Testis

Doğan Öztürk*, Hakan Bulus and Alper Yavuz

Department of General Surgery, Kecioren Training and Research Hospital, Ankara, Turkey

Abstract

A testicular carcinoma in retroperitoneal undescended testis can mimic other mesenteric or retroperitoneal mass. The role of cryptorchidism in testicular carcinogenesis has been of concern for many physicians for quite a long time. The probability of a malignant neoplasm developing in an undescended testicle is about 20 to 48 times greater than a normally descended testicle. The identification of pampiniform plexus draining the mass can play an important role in diagnosis of testicular carcinoma in undescended testis. The pathological diagnosis of the tumor was pure seminoma as showed. We report a case of seminoma in retroperitoneal undescended testis, draining into pampiniform plexus and thrombus within it. 44 years old male, admitted to the emergency department for left lower quadrant pain who was diagnosed seminoma originating in an undescended testis.

Keywords: Undescended testis; Seminoma; Carcinoma

Introduction

Retroperitoneal undescended testis carcinoma can be misdiagnosed as mesenteric or retroperitoneal masses. Furthermore, undescended testicles are risk factors for testicular cancer, especially for development of seminoma. While seminoma comprises 30% to 40% of testicular cancer in normal testicles, this rate is 60% in undescended testicles [1]. Undescended testicles are usually located in the distal part of the external inguinal ring and are usually palpable. Non-palpable undescended testicles are typically located in the inguinal canal, but in some cases they can be located intra-abdominally. The relative risk of tumor development in undescended testicles is 4 -7,5 fold higher than normal according to the literature [2,3]. The risk of cancer development is closely related to the position of the testis and intra-abdominally located testicles have the highest potential for malignancy [4]. Non-seminomatous germ cell tumors are less frequently seen. Demonstration of the mass being drained by the pampiniform plexus plays an important role in diagnosing testicular cancer for undescended testis. Unilateral dilation of the pampiniform plexus and development of venous thrombosis is important in the diagnosis of testicular cancer in undescended testis. This is defined as the vascular pedicle sign. We have hereby reported a 44-year-old male patient who had a wide, solid, retroperitoneal undescended testis seminoma displacing the neighbouring tissues, which was demonstrated on Computed Tomography (CT).

Case Presentation

A 44-year-old male patient presented to the emergency department with right and left lower quadrant pain. It was learnt that he had dysuria along with consistent pain. On physical examination, he had tenderness in the left lower quadrant but no rebound. An intra-abdominal mass was not detected on palpation. On scrotal examination, it was found that his left testis was not in the scrotum, but the right testis was in its normal location. The mass was considered to be a tumor originating from the left testis. On ultrasonographic evaluation, a smooth and heterogenous solid mass lesion of 74 mm x 70 mm size was detected in the superior contiguity of the bladder and compressing the bladder from the superior. On Doppler ultrasonographic evaluation, a significant vascularity was detected in the lesion. A smooth, hypodense mass lesion with intense homogenous content and 67 mm x 75 mm x 50 mm size located between the mesenteric layers neighbouring the superior part of the bladder was detected on abdominal Computed Tomography (CT) (Figure 1). No pathological finding was detected on chest X-ray. Laboratory findings were normal except for mild leucocytosis. Considering a tumor originating from his left undescended testis, an operation was planned for the mass. The abdomen was explored through an infraumbilical midline incision. A space occupying lesion with thick walls was detected, which was approximately 9 cm in diameter, located in the left of midline in the entrance of the pelvis, and pushing the sigmoid towards the right and anterior (Figure 2). Paraaortic, paracaval and mesenteric lymphadenopathies were not detected. The mass

OPEN ACCESS

*Correspondence:

Doğan Öztürk, Department of General Surgery, Kecioren Training and Research Hospital, Ankara, Turkey, Tel: +90 312 356 90 00; Fax: +90 312 356 90 02;

E-mail: drdoganozturk@hotmail.com

Received Date: 26 Jul 2018

Accepted Date: 17 Aug 2018

Published Date: 20 Aug 2018

Citation:

Öztürk D, Bulus H, Yavuz A. Seminoma in Retroperitoneal Undescended Testis. Clin Surg. 2018; 3: 2083.

Copyright © 2018 Doğan Öztürk. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



Figure 1: The "vascular pedicle sign" appearance on computed tomography.

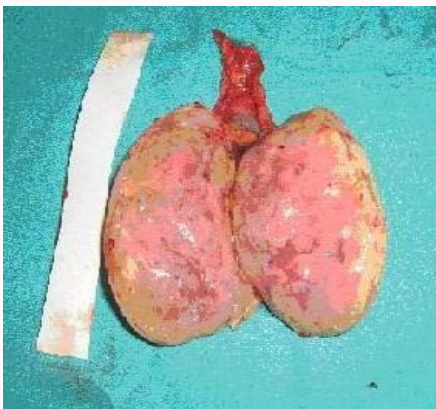


Figure 2: Macroscopic appearance of the mass after excision.

was excised by devascularizing from the neighbouring tissues. On pathological examination, a seminoma was seen, displaying a nodular growing pattern, including widespread areas with hemorrhage and necrosis (Figure 3).

Discussion

Retroperitoneal seminoma is a very rare disease of the testis [5]. Seminoma cases located in the retroperitoneum, mediastinum and thymus have been reported in literature. Extratesticular seminoma is considered to go through neoplastic formation during the migration of primordial germ cells to the scrotum from the yolk sac endoderm [6-8]. Undescended testis can be seen at any site during the development of the testis beginning from the lower pole of the kidney to the external ring. Approximately 66% of undescended testicles are located in the distal of the external inguinal ring, 16% in the inguinal canal, and 10% in the intra-abdominal location. Moreover, the location cannot be found surgically in 3% of undescended testis cases [9]. Development of malignancy in undescended testis is a commonly discussed subject. In these patients, development of cancer is seen in the 3 and 4 decades independently from the cancer location and interventions, as in normal testicles. In our case, the patient was in the 4 decade when he was diagnosed [10]. Prevalance of malignancy varies between 3.5% and 14.5% in undescended testes [11]. The ages in which the tumor is most prevalent, and the histological distribution of the tumor are similar to those in scrotal testes. The most prevalent tumor is seminoma. This is the type especially seen in cases located intra-abdominally. The other histological types of the tumor are embryonic cell carcinoma, teratocarcinoma and choriocarcinoma

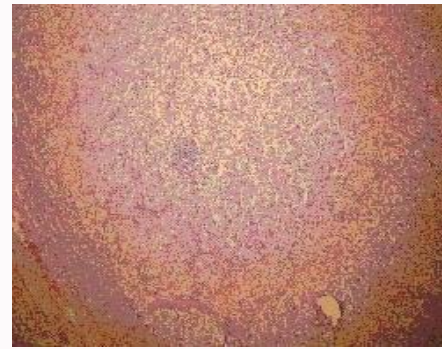


Figure 3: Histopathological appearance of the areas of atrophy and necrosis in seminoma.

[9]. In our case, the specimen was analysed histopathologically and it was reported as seminoma. The reason for the increased risk of malignancy is that orchiectomy is performed after puberty in patients with undescended testes [12]. When our patient presented to the emergency room with the complaint of abdominal pain, his left testis was not found in scrotum on the urogenital examination and it was seen that he had a retroperitoneal mass. Thus, his operation could be performed after puberty. Clinical manifestations of seminoma developing in undescended testes have significant variations. It can present with abdominal pain or symptoms related to the mass effect, while it can be asymptomatic. Furthermore, weight loss, constipation, and edema of lower extremities can be seen. In the differential diagnosis, it can be misdiagnosed as appendicitis or other masses that can form retroperitoneal masses [12]. In our case, an abdominal mass was not found on the physical examination, despite the presence of abdominal pain, weight loss and some non-specific findings.

Findings of metastases can be seen on chest X-ray in cases with extracellular seminomas. Intravenous pyelography and lymphangiography have been formerly used in the differential diagnosis, but they are not currently used. Computed tomography, which is used for determination of paraaortic lymph nodes, masses, locations and relations to neighbouring tissues, is still used for the diagnosis today. In our case, location of the mass and relationship with paraaortic lymph nodes were visualised on CT performed preoperatively [11,13]. The tumor size can be large when it is first detected if the symptoms are obscure and if the patient does not state that his testis is not in the scrotum. In our case, it was understood on the physical examination that his left testis was not in the scrotum, although he did not state that he had an undescended testis. Furthermore, in the preoperative period, mesenteric or retroperitoneal sarcoma, lymphoma or lymphadenopathies related to metastases must be taken into consideration in the differential diagnosis of this case [11,14]. Testicular vascular pedicle consists of vessels feeding and draining the testis [13]. In its developmental period, the testes pass through the inguinal canal with vascular, neural and ductal contents in the course of descent [15]. If testicular descent is interrupted in fetal life, the pampiniform plexus and the testicular vein would drain the undescended testes. Testicular angiography has been used as the most common study in the diagnosis of undescended testis for years. The presence and location of the testis can be known if the pampiniform plexus can be visualised by venography. Similarly, the display of the pampiniform plexus consisting of many parallel veins should be shown on CT in order to indicate the location of the undescended testis, in addition to the pelvic mass caused by the

undescended testis. Radiologists can interpret the findings as dilated vascular structures draining the mass on optimally contrasted thin section CT [16]. Thrombosis can develop in the inferior vena cava, renal vein or testicular vein due to the slow flow developing as a result of pressure exerted by the tumor or direct invasion of the testicular cancer [17]. No filling defect due to thrombus developed in the pampiniform plexus in our patient. On pathological evaluation, tumor emboli were reported in the vessels just beneath the tunica albuginea and in the periphery.

Conclusion

In conclusion, showing the absence of the spermatic cord in the ipsilateral inguinal canal and presence of the pampiniform plexus draining the mass is helpful in the determination of intra-abdominal undescended testis tumor.

References

1. Kogan S: (Kelalis PP, King CR, Belman AB). Cryptorchidism Clinical Pediatric Urology Third Edition. Philadelphia, Saunders. 1992;2:1050-83.
2. Swerdlow AJ, Higgins CD, Pike MC. Risk of testicular cancer in cohort of boys with cryptorchidism. *BMJ*. 1997;314(7093):1507-11.
3. Møller H, Cortes D, Engholm G, Thorup J. Risk of testicular cancer with cryptorchidism and with testicular biopsy: cohort study. *BMJ*. 1998;317(7160):729.
4. Cheng C, Chan PS. Cryptorchism with a large abdominal mass--a challenge. *Br J Urol*. 1993;72(6):946-8.
5. Abell MR, Fayos JV, Lampe I. Retroperitoneal germinomas (seminomas) without evidence of testicular involvement. *Cancer*. 1965;18:273-90.
6. Cha EM. Ectopic seminoma (germinoma) in the retroperitoneum and mediastinum: with emphasis on the lymphangiogram. *J Urol*. 1973;110(1):47-9.
7. Johnson DE, Laneri JP, Mountain CF, Luna M. Extragonadal germ cell tumors. *Surgery*. 1973;73(1):85-90.
8. Utz DC, Buscemi MF. Extragonadal testicular tumors. *J Urol*. 1971;105(2):271-4.
9. Lee JK, McClellan BL, Stanley RJ, Sagel SS. Utility of computed tomography in the localization of the undescended testis. *Radiology*. 1980;135(1):121-5.
10. Cheng C, Chan PS. Cryptorchism with a large abdominal mass--a challenge. *Br J Urol*. 1993;72(6):946-8.
11. Woodward PJ. Case 70: seminoma in an undescended testis. *Radiology*. 2004;231(2):388-92.
12. Yun JK, Myeong JB, Soung HK, Ji-Young K: Seminoma in undescended testis. *Abdominal Imaging*. 2008;33(2):241-43.
13. Karcaaltincaba M, Kaya D, Özkan OS, Akhan O. Preoperative multidetector computed tomography diagnosis of a seminoma originating from an undescended testis by 'testicular vasculer pedicle' sign. *J Comput Assist Tomogr*. 2006;30(5):794-95.
14. Frank HM, Winston SW, Steven WF. Seminomas complicating undescended intraabdominal testes in patients with prior negative findings from surgical exploration. *AJR Am J Roentgenol*. 1999;172(2):425-28.
15. Diamond AB, Meng CH, Kodroff M, Goldman SM. Testicular venography in the nonpalpable testis. *AJR Am J Roentgenol*. 1977;129(1):71-5.
16. Nguyen HT, Coakley F, Hricak H. Cryptorchidism: strategies in detection. *Eur Radiol*. 1999;9(2):336-43.
17. Leslie JA, Stegemann L, Miller AR, Thompson IM. Metastatic seminoma presenting with pulmonary embolus, inferior vena caval thrombosis, and gastrointestinal bleeding. *Urology*. 2003;62(1):144.