

Sudden Death due to Cardiac Metastasis of the Larynx Carcinoma

LARİNKS KANSERİNİN KALP METASTAZINA BAĞLI ANİ ÖLÜM

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SUMMARY

Cardiac metastases of different tumors have a great importance in forensic medicine because of causing sudden death by circulation failure. The most important primary tumors which involve the heart are; carcinoma of the lung, esophageal carcinoma, lymphoma, carcinoma of the breast and malignant melanoma. Laryngeal malignancies rarely involve the heart. We present a sudden death due to cardiac metastasis of the larynx carcinoma in a 38-year old male. The possible mechanism was thought that enlargement of the metastatic tumor in myocardium had caused sudden death by decreasing the contraction capacity of the heart and provoking circulation failure.

Key Words: Pathology and biology, Sudden death, Cardiac metastasis, Larynx carcinoma

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Cardiac involvement by primary and secondary tumors is one of the least investigated subjects in oncology (1). It is well known from autopsy series that metastatic tumors of the heart can be found in 1.5% to 21% of patients with malignancies and the incidence of cardiac metastases is showing a gradual increase in recent years (2). At necropsy the myocardium is the sixth most common site for arterial metastases among eight target organs in ten different types of disseminated primary cancer (3). Usually the metastases which are the most common cause of neoplastic diseases of the heart involve the pericardium and/or myocardium but rarely they from intracavitary masses (4). For secondary tumors involving the heart (including both me-

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ÖZET

Kalp metastazı yapmış değişik tümörler dolaşım yetmezliği nedeniyle ani ölümlere yol açtıkları için adli tıp açısından önemlidirler. Kalbi tutan en önemli primer tümörler şunlardır: Akciğer kanseri, özofagus kanseri, Lenfoma, meme kanseri ve malign melanoma. Larinks kanserleri nadiren kalbi tutarlar. Burada kalbe metastaz yapmış larinks kanseri nedeniyle ani ölüm gelişen 38 yaşında bir erkek hasta takdim edildi. Ölüm mekanizması muhtemelen şöyledir; tümörün büyümesine bağlı olarak kalp kontraksiyon kapasitesi azalmakta ve kalp yetmezliğini provoke ederek ölüme neden olmaktadır.

Anahtar Kelimeler: Patoloji ve biyoloji, Ani ölüm, Kalp metastazı, Larinks kanseri

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tastasis and local extension), important primary tumors are in males; carcinoma of the lung (31.7%), esophageal carcinoma (28.7%), lymphoma (11.9%), carcinoma of the liver (6.9%), leukemia (4.0%) and gastric carcinoma (4.0%), while in females; carcinoma of the lung (35.9%), lymphoma (17.0%), carcinoma of the breast (7.5%) and pancreatic carcinoma (7.5%) (1). Also the malignant melanoma is important for metastatic heart tumors (2,5,6). Cardiac involvement by systemic malignancies is suggested by sudden enlargement, bizarre changes in contour on chest x-ray, tamponade, arrhythmias or unexplained heart failure (7,8).

Larynx tumors rarely involve the heart. Laryngeal tumor is 2 per cent of all malignant tumors and 98 per cent of it's are carcinomas. The incidence is higher in males. Most of the cases are between 40-60 years old and smoking increases the risk (7,9,10).

Squamous cell carcinoma is the most common malignant neoplasm of the larynx (95%) and also is the most common malignancy of the head and neck

(7,9,10). Clinically laryngeal carcinoma produces refractory hoarseness early and then pain, dysphagia and hemoptysis (7,9). Invasion is by directly contact, lymphatic or hematogen. Prognosis is due to place of tumor, amount of invasion and histological grade. Survival for five years is over 50%.

THE CASE

A 38 year-old, 167 cm length, 55 kg weight male corpse who was cachectic. It was learnt that he had been treated for laryngeal carcinoma for one year. On the day before autopsy he had a cardiac arrest, after responseless to cardiopulmonary resuscitation the case was referred to the medicolegal center for investigation of the cause of death.

At the autopsy brain edema and a tracheostomy hole was established. There was a solid tissue mass which cover suppor trachea and whole larynx and obstructs the entrance of larynx completely. The left lung was adherent to thorax. The right lung was 375 gr, the left lung was 360 gr weight and there was wide edema in both of lungs. The heart was 350 gr weight, there were atheroma plaques on the aortic arch, thinness and hardness at the laterally wall of left ventriccle and a wide solid tumoral process in the whole myocardial tissue. The liver was 1830 gr weight and hard. When it was cut as cross sections the nutmeg appearance could be seen. Except these findings there wasn't any macroscopical pathology and traumatic sign.

Histopathological investigation of the lung showed wideness and congestion at the capillaries of alveolar septums, edema, bleeding and macrophage histiocytes full of pigment in some of alveols and emphysematous widenes in others.

The heart's histopathological investigation showed hypertrophy at some myocardial fibers, hyalinous wall thickness at coronary branches, fibrosis ini perivascular distance and between the fibers and metastatic tumor wich consists of islands of atypical squamous cells containing hyperchromatic big nucleus and wide cytoplasm.

Histopathological investigation of the liver showed congestion at the central veins and sinusoids, degenerative changes in paranchimal cells.

At the larynx, there was a wide ulceration area on which tumoral tissue consists of small groups of atypical squamous cells containing hypercchromatic nucleus and wide cytoplasm (Squamous Cell Carcinoma).

The brain's microscopy showed wideness and congestion at the medulla and pia vessels, dilatation at the Virchow Robin distances, slight increasing of microglia in the intermediate tissue, small calcification foccuses at the cortex.

According to all these indings it was decided that the cause of death was blood circulation failure resulted by cardiac metastase of laryngeal squamous cell carcinoma.

DISCUSSION

Cardiac metastases of different tumors have great importance in forensic medicine because of a sing sudden death by respiration and circulation failure. Larynx tumors rarely involve the heart (7,10). this particular case as thought the origin of tumor v larynx, there wasn't any other metastases except heart, we thought that tumor had involved the heart hematogen in early term. Age and sex of decea: was consistent with medical literature (7,9,10).

Histological type of laryngeal tumor was sqamous cell carcinoma and is 95 per cent of larynx < cinomas (9,10). Macroscopical and histopathologic^ vestigations of tissues showed that the cardiac metasis of the tumor had caused Congestive Heart lure. It was thought that enlargement of the metas tumor in myocardium had caused sudden death by creasing the contraction capacity of the heart and voking circulation failure.

According to the articcle 451 of Turkish P Code (TPC) if death following and assault is relate an existent unknown pathological process, the as tant is not given full punishment of murder. Howev the assultant is aware of the victim's status and ir tionally causes harm or damage resulting death, will be regarded as a homicide according to the cle 448 of TPC (11). In this particular case; sui death was due to an unexpected pathological pre which causes the heart failure. If there were an a and trivial injury, iti would be very hard for forensi pert to explain the condition and innocence of thi sultant without a detailed autopsy.

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