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Case Report on Mesothelioma

By Saranya K., Sreejith K. & Dr. Ajayakumar
College of Pharmaceutical Sciences

Abstract- A Mesothelioma is an aggressive form of cancer that affects the protective tissues covering the lungs and abdomen. The major clinical manifestations include shortness of breath, cough, tiredness and weight loss. Exposure to asbestos is the common risk factor for mesothelioma. Diagnosis was done by chest x–ray, MRI, and lung function tests. A Biopsy was needed to confirm diagnosis of mesothelioma. Chemotherapy is the only treatment that helps in survival. Combination of cisplatin and pemetrexed is proved to improve quality of life. Treatment regimens involving immunotherapy have yielded variable results.

Keywords: *mesothelioma, cisplatin, immunotherapy.*

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I. Introduction

A mesothelioma is an aggressive form of cancer that progress in the lining of lungs, abdomen or heart. It most commonly starts in the layer of tissues that cover each lung. It may be of two types- pleural mesothelioma which affects the tissues that surround the lungs. It includes chest pain under rib cage, painful coughing, shortness of breath, weight loss etc. Peritoneal mesothelioma – which occurs in tissues of abdomen. The signs and symptoms include abdominal pain, abdominal swelling, lumps of tissue in the abdomen etc. The diagnosis is done by chest X-ray, CT scan, thoracoscopy and biopsy. Possible treatment includes chemotherapy, radiotherapy, and surgery. Radiotherapy involves high energy radiation to kill cancerous area if mesothelioma is diagnosing at very early stage. Deposition of asbestos fibers in the parenchyma of the lung may result in the penetration of the visceral pleura from the fiber. This is then carried to the pleural surface, thus leading to the development of malignant mesothelial plaques.

II. Case Presentation

A 79 year old male patient was admitted to the oncology ward and diagnosed to have mesothelioma. The patient was a smoker and stopped five years back. The patient had complaints of breathlessness and cough for last 1 ½ months. The patient developed hemoptysis for two weeks with progressive dyspnoea on exertion. CT scan reports show moderate right sided pleural effusion and partial collapse of the right lungs. Pleural thickening of 1.2 c.m in the right upper zone with nodular lesions is seen in diaphragmatic pleura. There is no lymph node enlargement. No definite abrasions are present at the lungs. Fine needle aspiration cytology shows right upper lungs benign bronchial epithelial cells and few atypical cells showing drying artifact suspicious of mesothelioma. Blood results show elevated adenosine deaminase level. Immunohistochemistry shows Thyroid transcription factor (TTF) is strongly positive. Pleural fluid cytology showed no malignant cells were present. USG abdomen shows that there is no ascites and no prostatomegaly. Biopsy reports show the presence of metastatic adenocarcinoma and mesothelioma. Treatment was done by chemotherapy using injection Pemetrexed (600mg,every three weeks) and Carboplatin 450mg/100ml, every 28 days) for 3 cycles.

III. Discussion

Mesothelioma is one of the chronic malignancies coming under non small cell lung cancer which is most commonly seen in upper respiratory sites. It commonly affects the lungs and chest wall. Deposition of asbestos fibers in the parenchyma of the lungs may result in the penetration of the visceral pleura from where the fiber can be carried to the pleural surface, thus leading to the development of mesothelioma.

The diagnosis was done by CT scan, biopsy and immunohistochemistry. CT scan reports of the patient show moderate right- sided pleural effusion and partial collapse of the right lungs. Pleural thickening of 1.2 c.m in the right upper zone with nodular lesions is seen in diaphragmatic pleura. There is no lymph node enlargement. No definite lesions are present at the lungs. Fine needle aspiration cytology shows right upper lungs benign bronchial epithelial cells and few atypical cells showing drying artifact suspicious of mesothelioma. Blood results show elevated adenosine deaminaselevel. Immunohistochemistry shows Thyroid transcription factor (TTF) is strongly positive. Pleural fluid cytology showed no malignant cells were present.

Chemotherapy is the mainstay for the treatment of mesothelioma. Here the patient is treated using injection Pemetrexed (600mg, every three weeks) and Carboplatin 450mg/100ml, every 28 days) for three cycles.

IV. Conclusion

A mesothelioma is an aggressive form of cancer that affects the protective tissues which cover the lungs and abdomen. It most commonly starts in the layer of tissues that cover each lung. The signs and symptoms include abdominal pain, abdominal swelling,

Author α σ: Department of Pharmacy Practice, College of Pharmaceutical Sciences, Government Medical College, Calicut, Kerala, India. e-mail: jithuspharma@gmail.com
Author ρ: Department of Oncology, Govt. Medical College, Kozhikode.

lumps of tissue in the abdomen, etc. The diagnosis was done by chest X- ray, CT scan, thoracoscopy and biopsy. Long term survival and cures are exceedingly rare. Chemotherapy is the main treatment that has been proven to improve survival in randomized and controlled trials. Chemotherapy with cisplatin or carboplatin in combination with pemetrexed is the treatment regimen for mesothelioma.

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Abbreviations:
CT: Computed Tomography, USG: Ultrasound sonography, TTF: Thyroid transcription factor.

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