Tumoral pericardial involvement in non-Hodgkin lymphoma-spektrum of CT findings

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ABSTRACT

Lymphomatous involvement of pericardium is relatively commonly seen in patients diagnosed with Hodgkin and non-Hodgkin disease, presenting large mediastinal mass. Pericardial and cardiac involvement may be a late manifestation of lymphoma. Pericardial nodular thickening or effusion, a tumoral mass extending into the superior pulmonary veins are signs of secondary tumoral pericardial involvement. But pericardial effusion is not a specific and reliable sign of tumoral pericardium, because in patient with lymphoma can be seen postradiotherapy or in case of infection. Familiarity with imaging aspects in lymphomatous pericardial involvement is essential for an accurate diagnosis.

Key words: pericardial tumor, non-Hodgkin lymphoma, pericardial effusion, imaging signs

INTRODUCTION

Pericardial involvement in a non-cardiac tumoral process is more frequent seen than primary pericardial/cardiac tumor (1). Local extension, hematogenous / lymphatic dissemination and a transvenous route are the main pathways for tumoral spread (2). Lymphoma, lung and breast carcinoma are more likely to interest pericardium in a tumoral processes (2, 3). Computed tomography is the most current imaging method used to detect mediastinal mass and chest disease in patient with known lymphoma (4,5).

CASE REPORT

We present a case of a male patient, 36 years old, diagnosed with non-Hodgkin lymphoma, complaining of retrosternal pain, aggravated by profound inspire and change of patients position.

Contrast-enhanced CT images show a multilobulated, heterogenous large right anterolateral mediastinal mass (*figure 1*), plated on the right cardiac border with obliteration of the normal tissue planes between the pericardium and the tumoral mass, with flattening of the lateral border of right atrium (*figure 1 c*). A

Figure 1 - Large right anterolateral mediastinal mass (arrow heads), plated on right cardiac border, with flattening of right atrium (arrow)

small amount of pericardial effusion (*figure 2 a-b*) and nodular thickening of right pericardium were noted in the proximity of the tumoral mass (*figure 2 c-d*). Coronal CT images depicts a large tumoral thrombus (*figure 3 b*) into the superior vena cava (SVC), with almost complete obstruction of SVC (*figure 3 a*). Also, we noted tumoral encasement and narrowing of right superior pulmonary vein (*figure 3 c, d*).

Two months postchemotherapy, the tumoral mass

Figure 2 - Small amount of pericardial effusion (a, b) and nodular thickening of pericardial layers (c,d- arrows)

regressed (*figure 4 a*), with a residual small tumoral thrombus into the distal part of the SVC (*figure 4 c*). Also, CT images no longer depict effusion or nodular thickening of pericardium (*figure 4 b*). We noted the development of pulmonary embolism (*figure 4 c, d*).

Figure 3 - Direct invasion and intraluminal thrombus with narrowing and compression of superior vena cava (a, b-arrow head). Tumoral encasement and narrowing of superior right pulmonary vein (c, d-curved arrow)

Figure 4 - CT evaluation after chemotherapy. Regression of the tumoral mass (a-arrow) and of the tumoral SVC thrombus (c-curved arrow). Complete regression of pericardial thickening and effusion (b-notched arrow). Emboli involving left inferior pulmonary artery and ramifications

DISCUSSION

Secondary tumoral involvement of pericardium is suggested by a pericardial effusion, nodular or diffuse pericardial thickening and a tumoral mass arising or contiguous with the pericardium (6). In a patient diagnosed with lymphoma and pericardial effusion, the differential diagnose includes not only a malignant pericardial disease, but also some other condition (complication of irradiation, opportunistic infection) (7), so is mandatory that the diagnosis to be made by means of pericardiocentesis (2). In our case we showed complete regression of nodular thickening and pericardial effusion postchemotherapy.

Direct extension of the tumoral mass into pericardium is most frequent seen in patients diagnosed with lung carcinoma and lymphoma (2). Also invasion of the superior vena cava and pericardium by a large mediastinal mass is relatively commonly seen (4). In our case we showed a multilobulated mediastinal mass with tumoral thrombus invasion into SVC, with almost complete vein obstruction. Lung carcinoma and lymphoma are the most frequent neoplasms associated with superior vena cava syndrome. Also, we noted flattening of the lateral border of the right atrium. Compression of the cardiac chambers is a finding that may indicate cardiac tamponade. (7). In our case we

didn't find any other signs that can suggest cardiac tamponade (enlargement of SVC and IVC, periportal edema etc).

CONCLUSIONS

Familiarity with the CT findings in pericardial involvement by lymphoma is essential for an accurate diagnosis and impacts the patient's treatment. Contrast-enhanced CT plays a main role in the evaluation of mediastinal mass, tumoral extension, to identify signs of pericardial tumoral involvement or signs of complications.

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