

Case Report

The natural history of pericardial tamponade secondary to recurrent ovarian carcinoma – A case report and review of the literature



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ARTICLE INFO

Article history:

Received 6 May 2014

Accepted 11 June 2014

Available online 18 June 2014

Keywords:

Ovarian carcinoma

Pericardial tamponade

Introduction

Ovarian carcinoma is, to date, a rare cause of neoplastic pericarditis and cardiac tamponade. As such, the natural history and the management of this life threatening event are ill defined. We describe a 72 year old patient with advanced stage ovarian cancer that suffered from recurrent pericardial effusion and tamponade.

Patient description

A 72 year old, Ashkenazi, BRCA1 carrier (185 Del AG) diagnosed with stage IIIC ovarian cancer in 2006, was treated with neoadjuvant chemotherapy followed by optimal cytoreductive surgery and adjuvant chemotherapy. In 2008, due to recurrence of the tumor, she underwent a secondary debulking surgery followed by intraperitoneal chemotherapy.

Two years later recurrent disease was again diagnosed. The patient refused further chemotherapy and therefore was treated with a PARP inhibitor (Olaparib) under the course of a clinical trial. 21 months later she was withdrawn from the trial due to pelvic and abdominal disease progression and refused further systemic treatment.

2 months following treatment cessation the patient presented with a two week history of worsening dyspnea. Her vital signs were notable for tachycardia (HR of 113), tachypnea (20 breaths/min) and her blood pressure was 119/79. Reduced breath sounds in the base of the right lung and jugular venous distension were noted on physical examination. ECG demonstrated low voltage and electrical alternans (alternating amplitude of the QRS complexes). We initially suspected

a massive pulmonary embolism and right heart failure and thus a CT angiography of the chest was performed, demonstrating a large quantity of pericardial fluid (Fig. 1) and a right side pleural effusion (Fig. 2). Pulsus paradoxus was then noted on blood pressure measurement. A cardiac echo exam showed a large amount of pericardial fluid and an alternating right ventricle and right atrium collapse, confirming the diagnosis of pericardial tamponade. Pericardiocentesis was performed and 1 l of bloody pericardial fluid was drained, followed by resolution of her symptoms. Cytology examination of the fluid was positive for malignant cells compatible with adenocarcinoma. The patient refused further therapy (i.e. sclerotherapy or chemotherapy) and was thus discharged for community palliative care.

Six weeks later she presented again with progressive weakness, dyspnea and chest pain. A cardiac echo demonstrated recurrence of a large pericardial effusion and a repeat pericardiocentesis was performed, this time draining 1.700 l of exudative fluid. The patient again refused any further treatment and passed away 6 weeks later.

Discussion

Cardiac tamponade is a life threatening event caused by accumulation of large amounts of pericardial fluid within a relatively short time. Physical examination and echocardiography are the primary tools for diagnosis of cardiac tamponade.

Malignant involvement of the pericardium and cardiac tamponade can be one of the manifestations of cancer. Among the tumors that metastasize to the pericardium, lung cancer is reported most frequently (Petersen et al., 2009; Blich et al., 2007; Winter et al., 2002).

Diagnosis of malignant cardiac tamponade can be challenging, since the symptoms mimic other more frequent complications of advanced cancer such as pulmonary embolism and respiratory failure due to lung or pleural metastases. Treatment of malignant tamponade consists of removing the fluid (pericardiocentesis), preventing its re-accumulation by local treatment to the pericardium and treating the underlying malignancy. Methods for preventing re-accumulation consist of prolonged drainage, forming a pericardial window and sclerotherapy. Multiple agents can be used for sclerotherapy including talc, doxycycline and bleomycin, but none of them has shown a clear advantage over prolonged drainage alone. The choice and combination of treatment are tailored according to the underlying malignancy and the patient's status.

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Fig. 1. CT axial view demonstrating a large pericardial effusion (upper arrows) and a right pleural effusion (lower arrow).

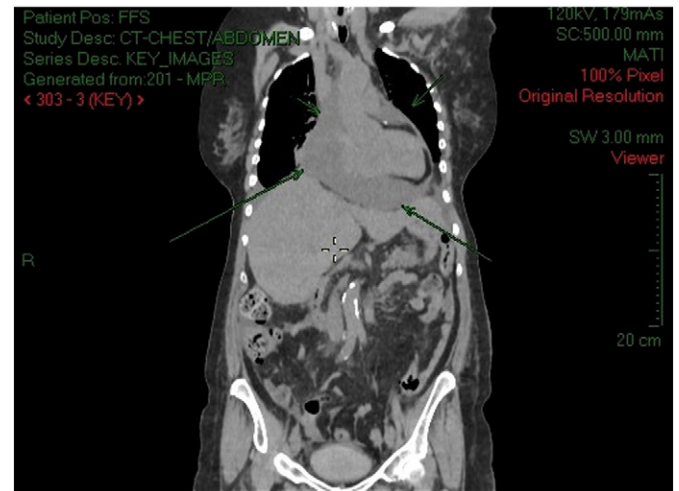


Fig. 2. CT coronal view demonstrating the large pericardial effusion (arrows), note the relative paucity of ascitic fluid.

Table 1
Ovarian carcinoma complicated by cardiac tamponade – a literature review.

Authors	Stage	Treatment	Outcome
Petersen et al. (2009)	IV	Recurrent drainage and sclerotherapy, combination chemotherapy	Survived 12 months
Blich et al. (2007)	IIIC	Drainage, recurrence after 1 month, drainage	Died 1 week later after 2nd drainage
Lund (1985)	IV	Catheter drainage for 4 days	Died 2.5 months later
Micha et al. (2007)	IIIC	Pericardial window, retreatment with mitoxantrone injection after recurrence	NA
Levitan et al. (1990)	IV?	Drainage, tetracycline infusion, pericardial radiation and combination chemotherapy	Survived 2.5 years
Mäenpää et al. (1988)	IIIB	Drainage and combination chemotherapy	Survived 11 months
Donato et al. (1986)	III	Drainage and tetracycline sclerotherapy	Died within 24 h
Lund (1985)	III	Drainage and tetracycline sclerotherapy	Died within 3.5 weeks
Winter et al. (2002)	IV	Drainage and cytoreductive surgery	Died within 23 days
Forslund et al. (1991)	IV	Drainage and intracardiac Bleomycin, cytoreductive surgery, one course of combination chemotherapy	Died 14 months later

Although described in the past, cardiac tamponade is an uncommon complication of advanced ovarian cancer. 10 other cases of malignant pericardial involvement secondary to ovarian carcinoma have been described in the English literature (Petersen et al., 2009; Blich et al., 2007; Winter et al., 2002; Forslund et al., 1991; Levitan et al., 1990; Micha et al., 2007; Donato et al., 1986; Lund, 1985; Mäenpää et al., 1988) as outlined in Table 1. In the majority of cases tamponade is diagnosed after disease recurrence. It seems that of the cases described (Table 1), the longer overall survival was achieved in patients that were treated aggressively with sclerotherapy and systemic chemotherapy. It is noteworthy that of the 8 cases in which the tamponade was associated with disease recurrence the two patients having the longer overall survival after diagnosis (Levitan et al., 1990; Mäenpää et al., 1988) were chemotherapy sensitive. This probably reflects the systemic nature of ovarian cancer and the fact that tamponade is many times a complication of advanced recurrent disease, a setting where patients are often too sick to be treated by chemotherapy and treatment options have often been exhausted.

Our patient was on a palliative program and refused any further treatment after the diagnosis of the first episode of malignant cardiac tamponade, suggesting the natural history of malignant pericardial tamponade associated with ovarian carcinoma.

If treated by pericardiocentesis alone with no further therapy (i.e. sclerotherapy and/or chemotherapy) the pericardial fluid re-accumulation and the life expectancy seem to be short (6 and 12 weeks respectively in this patient's case). This information

should be discussed with patients presenting with tamponade and can assist us in managing this rare complication.

Conclusion

Cardiac tamponade secondary to ovarian cancer is a rare manifestation of advanced disease. Our case underlines the difficulty to correctly diagnose and the natural history of tamponade in patients with ovarian cancer. The gynecologic oncologist should be aware of its quick (6–12 weeks) fatal outcomes and the need to aggressively treat this life threatening complication.

Conflict of interest statement

The authors declare that there are no conflicts of interest.

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