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# Case Report: Uncontrolled Anasarca: Capillary Leak Syndrome

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## ONCOLOGY

# Case Report: Uncontrolled Anasarca: Capillary Leak Syndrome

Ankita Mehta, MD, and Mansi Shah, MD

## INTRODUCTION

Capillary leak syndrome (CLS) is a rare clinical disease that causes edema, hypoproteinemia, episodic hypotension, dyspnea, hyponatremia, and weight gain that can be life threatening<sup>1</sup>. Although the underlying pathology is currently unknown, CLS is thought to be secondary to a systemic process associated with hyperpermeability of the body's microcirculation, resulting from a diffuse and severe disruption of the endothelium and causing generalized edema and often acute respiratory distress<sup>2</sup>.

## CASE PRESENTATION

A 60 year old female with metastatic pancreatic cancer undergoing gemcitabine treatment presented with weight gain, dyspnea on exertion, and orthopnea. Since the initiation of gemcitabine three months prior to presentation, the patient had noticed progressive weight gain - 5 lbs a week, with the rate of weight gain accelerating recently. This coincided with bilateral lower extremity swelling and abdominal distension. On physical examination, the patient had jugular venous distension and lower extremity edema. Labs were significant for an albumin of 3.1 g/dL with a normal hepatic panel, a sodium of 131 mmol/L, and urine studies that were not consistent with nephrotic range proteinuria. Imaging had nonspecific findings. Chest X Ray demonstrated small bilateral pleural effusions and an abdominal ultrasound revealed mild ascites. Ventricular dysfunction and venous thromboses were excluded with an echocardiogram and lower extremity ultrasound. Ultimately, the anasarca was attributed to capillary leak syndrome induced by gemcitabine therapy.

## DIFFERENTIAL DIAGNOSIS

Prior to presuming capillary leak syndrome, it was necessary to eliminate other causes of anasarca. Echocardiogram was done to rule out cardiac dysfunction. Urine studies indicated that a renal process causing nephrotic syndrome was not the predominant disease pathology. Abdominal ultrasound ruled out liver pathology.

## OUTCOME AND FOLLOWUP

The patient was given diuretics and responded well over the course of a few days. Her hyponatremia resolved and she was sent home with an oral diuretic regimen. She was asked to monitor daily weights with instructions to report any changes of greater than 5 lbs to her doctor. Although she continued to be anasarctic, her dyspnea improved. Chemotherapy was discontinued, and the patient was readmitted to the hospital within two months due to

progression of her pancreatic cancer. She was ultimately discharged home with hospice care.

## DISCUSSION

Capillary leak syndrome (CLS) is a very rare (<1%) but important and severe adverse effect of gemcitabine therapy. There are some emerging case reports of capillary leak syndrome secondary to treatments from taxanes such as docetaxel and paclitaxel. As demonstrated by this case, capillary leak syndrome is difficult to treat with diuretics alone. Other reports recommend that there may be a therapeutic effect from high dose corticosteroids when given in conjunction with diuretics. Corticosteroid prophylaxis given concurrently with gemcitabine therapy may decrease toxicity that can curtail potentially fatal outcomes.<sup>4</sup> It will be important to determine if there is a dose dependent relationship between gemcitabine and CLS to ensure a safe medication profile.

Moreover, falling albumin levels along with weight gain in patients receiving gemcitabine may be precursors to CLS, and such patients should be screened for potential respiratory symptoms. It is important to include capillary leak syndrome in the differential in patients presenting with anasarca not due to cardiac, renal, or hepatic causes as it may lead to earlier cessation of gemcitabine treatment and potentially improved outcomes.

## KEY POINTS

Our patient on gemcitabine therapy presented with anasarca, which was unexplained by specific organ failure, and likely was the result of gemcitabine induced capillary leak syndrome. Capillary leak syndrome is an uncommon and poorly understood adverse effect of gemcitabine. More research is required to understand how to effectively treat or prevent this severe and potentially life threatening condition.

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