



NONTRAUMATIC SPONTANEOUS GAS GANGRENE OF FOOT IN A CASE OF SYNCHRONOUS COLONIC MALIGNANCY

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ABSTRACT

Synchronous colonic malignancies do occur but less commonly. The overall incidence of synchronous colorectal cancer is 2.3%-12.4%. Spontaneous gas gangrene of foot is rare to occur. Usually it occurs post-traumatic or in diabetic foot ulcer patients. In cases of colonic malignancy, occurrence of spontaneous gas gangrene of foot is rare. In such cases, clostridium septicum has been reported as affecting microorganism. Very few such cases have been reported in literature. In present case, 44 years old male patient who was admitted for synchronous malignancy of colon, spontaneously developed gas gangrene of right foot and started to extend above ankle progressively. Below knee amputation was done in emergency. Clostridium septicum was found to be the causative microorganism.

KEYWORDS : Clostridium septicum; Gas gangrene; Myonecrosis; Colorectal cancer

INTRODUCTION

Clostridium (C) is a anaerobic, gram positive bacilli. Some of the fatal conditions, such as tetanus, botulism, and gas gangrene, are caused by the Clostridia species. Among the Clostridium species, the most frequently encountered species for gas gangrene is Clostridium perfringens. Gas gangrene is an extremely fatal infection of soft tissue which involves myonecrosis (necrosis of muscle) and is characterized by rapidly progressive gangrene of the injured tissue accompanied by the production of foul-smelling gas.^[1] C. perfringens is majorly involved in myonecrosis following trauma, whereas C. septicum is notorious for spontaneous myonecrosis.^[2] C. septicum are motile, anaerobic, spore-forming, gram-positive rods. C. septicum can survive longer in aerobic settings because it doesn't require the same rigorous anaerobic conditions as C. perfringens.

Malignancy, particularly colorectal malignancy, is strongly associated with spontaneous clostridial myonecrosis.^[2] Multiple primary colorectal cancers encountered in a single patient are referred to as synchronous colorectal cancer. When more than one primary colorectal carcinoma has been identified in a single person after a predetermined period of time, the condition is known as metachronous colorectal carcinoma.^[3]

To highlight the significance of having a high suspicion for C. septicum in patients with malignancy, we report a rare case of synchronous colon cancer and the subsequent development of spontaneous atraumatic gas gangrene of foot.

Case Report

A 44 years old male patient came with complaints of pain in abdomen for 3 months and passage of black coloured stools for a week. There was a history of significant weight loss with an addiction history of smoking, 10 pack-years.

Patient had pallor. On palpation, an ill-defined, hard, mobile lump was palpable at the right iliac region. Contrast Enhanced Computerized Tomography (CECT) abdomen (Fig 2) and colonoscopy suggested two separate lesions at

ascending colon and sigmoid colon. Histopathological examination of biopsy from both lesions confirmed the diagnosis of adenocarcinoma.

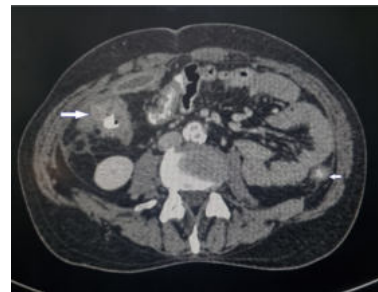


Fig 1 - CECT image showing growth at ascending colon and sigmoid colon

After 20 days of admission, the patient developed spontaneous change in colour of skin of right foot followed by bleb formation and on palpation crepitus was present. So patient has been diagnosed as spontaneous non-traumatic right lower limb gas gangrene. Microscopic examination of foul smelling secretion suggested presence of Clostridia.



Figure 2 : Right lower limb atraumatic below knee spontaneous gas gangrene

Right below knee amputation was performed in emergency. Postoperatively, digital subtraction angiography of bilateral lower limb was done. It was suggestive of extensive atherosclerosis of both the lower limbs. Patient's left lower limb also started to develop few patchy skin changes but bilateral aorto-iliac plasty and stenting was performed on emergency basis. Higher antibiotics and hyperbaric oxygen therapy were given to patient before definitive surgery of colonic malignancy.

Later patient underwent total colectomy with primary ileo-rectal anastomosis and proximal diversion ileostomy. Two ulcero-proliferative lesions were found at ascending colon and sigmoid colon (Fig 3). Histopathological suggested well-differentiated adenocarcinoma, pT3N0Mx - Stage III. Postoperatively patient received chemo-radiation. After chemo-radiation cycles, ileostomy closure was done electively.



Fig 3 – Total colectomy specimen with caeco-ascending colon growth and sigmoid colon growth

DISCUSSION

Synchronous colorectal malignancy refers to more than one primary colorectal malignancy detected in single patient simultaneously or within 6 months of initial diagnosis. The overall incidence of synchronous colorectal cancer is 2.3%-12.4%.^[4]

Extensive resection is necessary for right and left colon synchronous malignancy. Obstruction, perforation, metastasis, bleeding, fever are known complications of colonic malignancy.

Spontaneous development of myonecrosis and gas gangrene of extremity is rare complication.

M Bozkurt et al^[5] reported a case of fulminant abdominal gas gangrene in a patient with metastatic colon cancer. M Powell et al^[6] reported a case of metastatic myonecrosis of right hand in a diabetic patient with a perforated caecal tumour.

Clostridium septicum has been reported to cause atraumatic myonecrosis in such malignancy. The occurrence is rare but highly fulminant. Gas gangrene can cause myonecrosis (muscle tissue death), gas production, and sepsis. Progression to toxemia and shock is often very rapid. It can easily be noticed by the large, blackened sores that form, as well as a degree of loud and distinctive crepitus caused by gas escaping the necrotic tissue.

A study by Nanjappa S et al^[7] stated that the presentation of *C.septicum* bacteremia might vary, and it is fatal in more than 60% of cases. If a diagnosis and appropriate measures are not initiated soon, the majority of deaths happen within the first 24 hours.^[7]

Clostridium septicum are more aerotolerant and associated distant atraumatic myonecrosis is likely due to hematogenous seeding. Conditions precipitating hypoxia such as chronic inflammation, chronic ischaemic conditions like

atherosclerosis and anaerobic glycolysis by tumor cells are the risk factors. The treatment is always aggressive since the average mortality rate is greater than 60% especially if appropriate treatment measures are not started urgently.^[5] Ultimately, the patient also needs aggressive resection of synchronous malignancy of the colon.

In present case, patient was admitted for synchronous colonic malignancy. He spontaneously developed gas gangrene of right foot during hospital stay. So, he was aggressively operated with below knee amputation in emergency. Later, total colectomy with ileo-rectal anastomosis with proximal ileostomy was done for synchronous malignancy of colon. Synchronous colonic malignancy and spontaneous gas gangrene are not common, and their occurrence together in same patient is rare.

CONCLUSION

Infection with *clostridium septicum* is rare but fatal, owing to its highly virulent and aggressive nature. This warrants early identification and initiation of treatment with an aim to decrease morbidity and mortality related to it. Patients who present with gastrointestinal or colonic malignancy can develop such dreaded complication. High index of suspicion is essential to diagnose such occurrence early and to treat effectively.

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