

Overcoming challenges in managing necrotizing fasciitis in an elderly woman with COVID 19 disease

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Introduction

Necrotizing fasciitis in the elderly is a condition that carries a very high morbidity and mortality [1]. The incidence is on the rise as the patient population with chronic medical comorbidities and immunosuppressives is increasing [2].

There are 3 types of necrotizing fasciitis, polymicrobial type being the commonest [3]. There is evidence that MRSA and facultative anaerobic bacteria can give rise to worse outcome. Increased mortality has also been noted in patients with bacteraemia, peripheral arterial disease and presence of haemorrhagic bullae. Early wound debridement shown to be associated with better survival [4].

Value of a multidisciplinary approach cannot be overemphasized in dealing with this high mortality condition.

Case presentation

An 83 year old woman with markedly limited mobility had been on inhaled steroids for bronchial asthma. She developed generalised weakness, cough and fever and was then rushed to a teaching hospital by her personal carers. Routine throat swab PCR confirmed that she was COVID positive and she was immediately transferred to National Institute of Infectious Diseases [NIID].

On the second day of stay in the NIID, she developed features of cellulitis of the right leg. Routine investigations revealed grossly elevated inflammatory markers with hypoalbuminaemia. Despite being on antibiotic treatment with intravenous meropenem 1g TDS, clindamycin 600mg TDS and flucloxacillin 500mg QDS, her affected leg developed worsening cellulitis with haemorrhagic blistering and necrotic patches. At this point a surgical referral was done and the patient was transferred.

On admission to the COVID unit of our hospital under the surgeons, she was ill looking, febrile [38.3o c] and

dehydrated. Her heart rate was 97 beats per minute and the blood pressure was 110/ 70 mm Hg. Respiratory rate was 26 per minute and chest auscultation revealed bilateral rhonchi with scattered crepitations. Urethral catheterization yielded only a few millilitres of concentrated urine. She was administered oxygen via face mask. Initial stabilization included judicious correction of fluids and electrolytes coupled with general nursing care. Antibiotics were changed empirically to intravenous piperazillin tazobactam with clindamycin.

Oral azithromycin was added to the regimen in order to combat the chest pathology. Primary wound debridement was undertaken urgently. Hydrocolloid dressings were applied to the debrided ulcerated tissues and partial thickness ulcers covered with absorbent foam dressings. Tissue cultures were taken.

Blood was drawn for basic haematology and biochemistry. The chest radiograph showed hilar shadowing. Medical input was sought for the symptomatic COVID disease.

She was put on a high protein calorie diet as per clinical nutritionist's advice. However, the patient did not qualify for chest physiotherapy according to world federation of Physical Therapy COVID 19 guidelines.

The patient's family was by then in quarantine. Their anxiety was alleviated and concerns addressed by answering frequent calls and they were kept well informed of the progression.

Intense nursing and supportive care with regular wound debridement and dressings made a significant improvement to the patient's condition. Day 4 throat swab COVID 19 PCR followed by the sputum PCR turned negative. At that point, the patient was considered non infective and hence mobilized out of the COVID unit to the surgical ward isolation room to further facilitate enhanced care.

Dressing change on the day 6 revealed epithelialization of the upper leg ulcers and healthy deep ulcer around the ankle region. Dressings were changed to cotton and gauze over foam dressings. Patient was discharged home accompanied by the hospital staff conforming to the guidelines of the public health authorities. Patient care instructions given to the family

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and advised to call the surgeon direct as and when the need arose. Subsequent outpatient follow up saw complete recovery of the patient.

Discussion

Management of COVID 19 surgical patient poses several challenges. Surgical stress on top of the stress of this deadly disease was the main concern. The patient's already compromised immune system due to age related disabilities and nutritional setback had to combat bacteraemia of necrotizing fasciitis and viraemia of COVID synchronously. Inhaled steroids for asthma further aggravated the respiratory complications of COVID 19. This and her poor general condition made her a bad candidate for surgery. Therefore, wound debridement had to be performed in the COVID unit itself with limited resources.

As the staff exposure to the COVID 19 had to be kept to a minimum, audio/ video communication systems was used for close monitoring. However, the patient was approached by the front line health staff attired in full personal protective equipment [PPE] frequently for administration of drugs, feeding, wound care, medical and nursing care.

Necrotizing fasciitis is a condition that commonly affects the elderly, debilitated and the immunocompromized [5]. Early diagnosis is lifesaving [4]. Treatment has three main components: surgical debridement, antibiotics and supportive care [5]. Physicians of the NIID made an early referral when the antibiotic treatment failed. As early surgical debridement is the key to the patient outcome [6], wound debridement was performed within a few hours of admission having optimised the patient.

Antibiotics were changed empirically to cover the polymicrobia of the soft tissue sepsis and the secondary chest infection. Tissue cultures had not grown any organism as she was already on broad spectrum antibiotics.

Main challenge was providing intense nursing care to the patient in isolation. This was achieved by adopting measures like nursing on an electrical air mattress and application of hydrocolloid and absorbent foam dressings which could be kept for longer duration.

A point was made to do multiple tasks in any given single bedside visit e.g. nebulization, administration of drugs, performing investigations, general nursing care and feeding etc. Meticulous attention to inward holistic care coupled with streamlined outpatient follow up ensured complete patient recovery. It is noteworthy that dealing with this novel disease entity was facilitated by reassurances by the helpful senior surgical colleagues.

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Learning Points:

- Value of being prepared to deal with surgical emergencies in previously unknown hazardous situations.
 - Value of team work institutionally and soliciting opinions and advice of surgical colleagues in challenging unprecedented events.
 - To act diligently to yield the maximum productivity of the frontline staff whilst alleviating anxiety and ensuring their personal safety.
 - Holistic care in multiple comorbid patients and addressing concerns of their family members to be assured even in a compromised environment.
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