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Prime Healthcare

MISSED PERFORATED APPENDICITIS PRESENTING AS FLANK NECROTIZING FASCIITIS : A RARE COMPLICATION

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INTRODUCTION

Acute appendicitis is one of the most common surgical condition. Necrotizing fasciitis is a rare infection of the deeper layers of skin and subcutaneous tissues, rapidly spreading across fascial planes within the subcutaneous tissue.

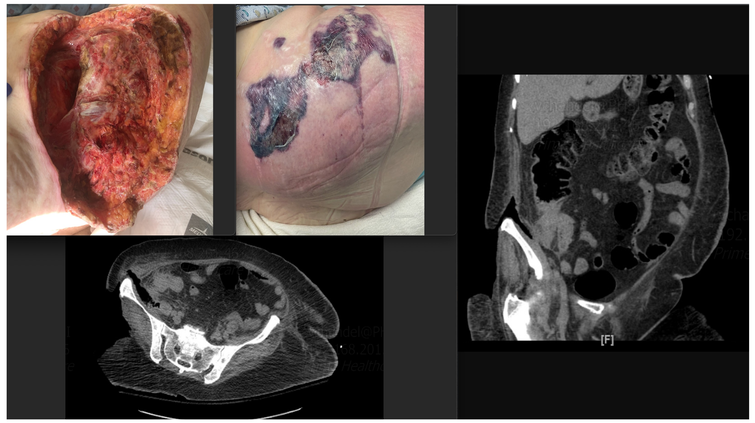
It has an average mortality rate of 20.6% and is a surgical emergency. Necrotizing fasciitis due to perforated appendicitis is even rarer.

METHODS

We present a case of necrotizing fasciitis of abdominal wall and right flank extending to hip secondary to a perforated appendix and reviewed the available literature. Confusion with cellulitis, can delay aggressive therapy.

CASE PRESENTATION

- A 66-year-old female presented with severe right flank and hip pain following 2-weeks history of right abdominal pain. She had tachycardia and hypotension.
- On physical examination, she had a large necrotic wound in right flank and hip with pus and blistering, and abdomen had no peritoneal signs. Her laboratory investigations revealed white cell count of 35,500/mm3.
- Non-contrast CT (patient was allergic to contrasts) showed features of necrotizing fasciitis in the flank and hip with inflamed and walled-off cecum and appendix.
- Antibiotics were started and emergent surgery revealed grossly necrotic tissue with multiple pockets of pus in subcutaneous tissue, fascia, and muscles of flank and hip extending to retroperitoneum along with multiple pelvic abscesses.
- Due to walling-off, disseminated retroperitoneal and pelvic infection had no further intraperitoneal connection. Her wound cultures grew Bacteroides, E.Coli and Aerococcus. Patient was discharged once stable, on wound vac and extended antibiotic regimen.



Necrotizing fascitiis from a silent perforated appendix: Upper left shows post operative wound after removing necrotic tissue and abscesses and other one shows wound in healing stages with a wound vac. Lower left shows CT imaging axial view and Right-side image shows CT imaging sagittal view of this patient: presence of perforated appendix with walled of cecal region and surrounding necrotizing fasciitis at ipsilateral flank and hip.

REVIEW OF LITERATURE OF ALL WORLWIDE CASES OF APPENDICEAL PERFORATION CAUSING NECROTIZING FASCIITIS

	Reference	Study type	Country of origin	Population	Comorbidities	Presenting Symptoms	Site of necrotizing fascitis	Diagnosis: modality and timing after admission	Appendicular location	Management of perforation	Management of Necrotizing Fasciitis	Outcome
1	Sayuri Mukoyama et al.	Case Report	Japan	n=1, 77 y/o M	Depression	Severe abdominal pain	Abdominal cavity, involving the right paracolic sulcus and Douglas pouch	NR	NR	Laparotomy	Laparotomy with surgical debridement and retention incision	NR
2	T Wy Chin et al.	Case Report	Hong Kong	n=1, 60 y/o M	None	Fever and lower abdominal pain	Right thigh and scrotum	CT scan on 1st day of admission	Retrocecal	Laporotomy with abcess drainage	Right above-knee amputation with excisional debridement	Death on 4th day of Admission
3	Luit Penninga et al.	Case Report	Denmark	n=1, 33 y/o F	35 weeks gestation, venous thrombophlebitis	Right sided abdominal pain and cystitis	Psoas muscle down to the right femur	CT scan on 15th day of admission	Retrocecal	Laparotomy, ileocoecal resection & ileostomy	Disarticulation of the right hip, debridement of necrotic tissue	Discharged to a Rehabilitation center
4	Angeliki M Tsimogianni et al.	Case Report	Greece	n=1, 52 y/o M	Flank laceration from cat scratch, recent im injection on ipsilateral gluteus	Lumbar pain and fever	Subcutaneous tissues of right lumbar, ipsilateral abdominal and lower anterior abdominal wall	Exploratory laparotomy on 6th day of admission	Retrocecal	Right hemicolectomy	Surgical debridement	Discharged
5	Zheng-Hao Huang et al.	Case Report	Taiwan	n=1, 65 y/o M	Adult-onset Still disease, CMV infection	Right lower quadrant abdominal pain	Right thigh and groin	CT scan on 1st day of admission	NR	Patient refused surgical treatment. Conservative treatment with IV antibiotics and steroids	Fasciotomy and debridement	Death during 2nd week of Admission
6	B J Bobrow et al.	Case Report	USA	n=1, 63 y/o M	Diabetes, HTN, CHF, Depression	Progressive abdominal pain	Anterior abdominal wall and right flank	Postmortem Examination	NR	None	Surgical debridement of necrotic tissue with repeats	Death on 5th day of Admission
7	J F Mazza Jr et al.	Case Report	USA	n=1, 59 y/o F	None	Abdominal pain, nausea, vomiting, fever	All muscle and fascial layers of the anterior abdominal wall originating from the right flank and retroperitoneum	Exploratory laparotomy on 1st day of admission	NR	Exploratory laparotomy	3 exploratory laparotomies with surgial debridement	Death on 2nd day of admission
8	Corinne Beerle et al.	Case Report	Switzerland	n=1, 58 y/o F	Hypertension, asthma, depression	Severe abdominal pain	Right lower abdomen	CT scan on 1st day of admission	NR	Diagnostic laparoscopy	Debridement of the subcutaneous tissue, vacuum-assisted closure	Discharge to Rehabiliation
9	H Fujiwara et al.	Case Report	Japan	n=1, 98 y/o F	NR	Right lower abdominal pain	Right lower quandrant of the abdomen	Abdominal ultrasonography on 1st day of admission	NR	Appendectomy and closure of the perforated cecum	Exploration and drainage	NR
10	D Groth et al.	Case Report	USA	n=1, 49 y/o F	HTN	Right sided abdominal pain, weakness, dizziness, difficulty walking, fever, nausea, and anorexia	Right abdominal wall and flank	Postoperative Diagnosis, 6 hours after admission	NR	Exploratory laparotomy	Surgical debridement of necrotic tissue with two repeats	Discharged home after 25 days
11	A Wilharm et al.	Case Report	Germany	n=1, 21 y/o M	None	"Banal" thoracolumbar back pain and right lower extremity sensory disturbances	Complete right leg	Postoperative Diagnosis, on 2nd day of admission	Retrocecal	Laparotomy, removal of the retroperitoneal abscess and a drainage insert	Debridement of the necrotic areas, Hyperbaric oxygen treatment, gmultiple wound revisions, vacuum sealing of the leg, split-thickness skin coverage	Discharged to Rehabilitation
12	Chuang-Wei Chen et al.	Case Report	Taiwan	n=1, 76 y/o F	Congestive heart failure, chronic obstructive pulmonary disease, chronic renal insufficiency	Lower abdominal pain, anorexia, obstipation, fever	All fascial and muscle layers of the anterior lower abdomen, right flank, right retroperitoneum	CT scan on 1st day of admission	Retrocecal	Laparotomy and right hemicolectomy	Right hemicolectomy , debridement of necrotic tissue with repeats	Discharged
13	Jie Hua et al.	Case Report	China	n=1, 50 y/o M	None	Right abdominal pain and fever	From retroperitoneal cavity to the subcutaneous layer of right loin and right lower limb	CT scan on 10th day of admission	Retrocecal	Appendectomy, debridement of necrotic tissues, drainage tubes placed	Surgical debridement	Death at 48 hrs of admission
14	Sawsan Taif et al.	Case Report	Oman	n=1, 26 y/o F	None	Severe thigh pain and swelling, right abdominal pain	Right lower abdomen and right upper thigh	CT scan and MRI on 1st day of admission	NR	Emergency laparotomy	Emergency laparotomy and fasciotomy of the thigh, soft tissue debridement	Death at 18 hrs of admission
15	John Oh et al.	Case Report	USA	n=1, 81 y/o F	None	Abdominal pain	Peritoneum, bladder wall, and anterior abdominal wall	CT scan on 1st day of admission	Periappendiceal	Exploratory laparotomy, periappendiceal abscess drainage, bladder perforation repair	Debridement of necrotic tissue	Death on post-operative day 19
16	Our Report	Case Report	USA	n=1, 66 y/o F	Hypertension, Hypothyroidism	Right flank, hip and abdominal pain	Right flank, lateral abdominal wall, right hip extending upto pelvic bone	CT scan on 1st day of admission, missed diagnosis of appendicitis	Retrocecal	None, walled-off already	Extensive surgical debridement	Discharge to Rehabiliation

NR: Not Reported

- Necrotizing fasciitis due to perforated appendix is rarely reported. Our literature review showed that only 16 cases (including this) have been reported with calculated mortality rate of 46.15% (3 cases did not report outcome). Retrocecal appendiceal location is mostly seen to be present.
- A rare but lethal complication of COVID-19 is GI perforation, especially in setting of treatment with steroids or interleukin inhibitors.

DISCUSSION

- In our patient, the perforated appendix ruptured through peritoneum into retroperitoneal space and drained out into lateral abdominal wall through superior and inferior lumbar triangles (areas of relative weakness) causing extensive necrotizing fasciitis of this region with multiple abscess formation.
- This case illustrates the importance of early diagnosis of disease, progression, and prompt surgical intervention and why should we be vigilant for clues of a missed silent appendicitis.

CONCLUSIONS

- Although acute appendicitis is one of the most common abdominal pathology, a delay in diagnosis can lead to complications like perforation which can cause life-threatening necrotizing fasciitis.
- Early recognition, broad-spectrum antibiotics, and timely surgical debridement are crucial.
- We should consider intra-abdominal pathologies in determining cause of necrotizing fasciitis presenting over abdominal, flank, or hip regions.

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