Atypical Fournier's Gangrene: gastrointestinal perforation associated with necrotizing fasciitis involving the abdominal wall, flank, or lower extremities.

Nicolas W. Cortes-Penfield M.D., Hanine El-Haddad M.D., and Daniel M. Musher M.D.

Department of Infectious Diseases, Michael E. DeBakey Veterans Affairs Medical Center;
Section of Infectious Diseases, Baylor College of Medicine, Houston, TX

Background

A 58 year old man presented to our hospital with necrotizing fasciitis of the left thigh after perforation of his rectal wall by an ingested toothpick, requiring multiple debridements and ultimately amputation of the extremity.

Hypothesizing that this case represented an atypical Fournier's gangrene (necrotizing fasciitis of the perineum), we reviewed the medical literature to identify other cases of necrotizing fasciitis associated with bowel perforation.

After identifying several similar cases, we compared this patient cohort with case series describing typical Fournier's gangrene to appreciate the unique characteristics of patients with atypical disease.

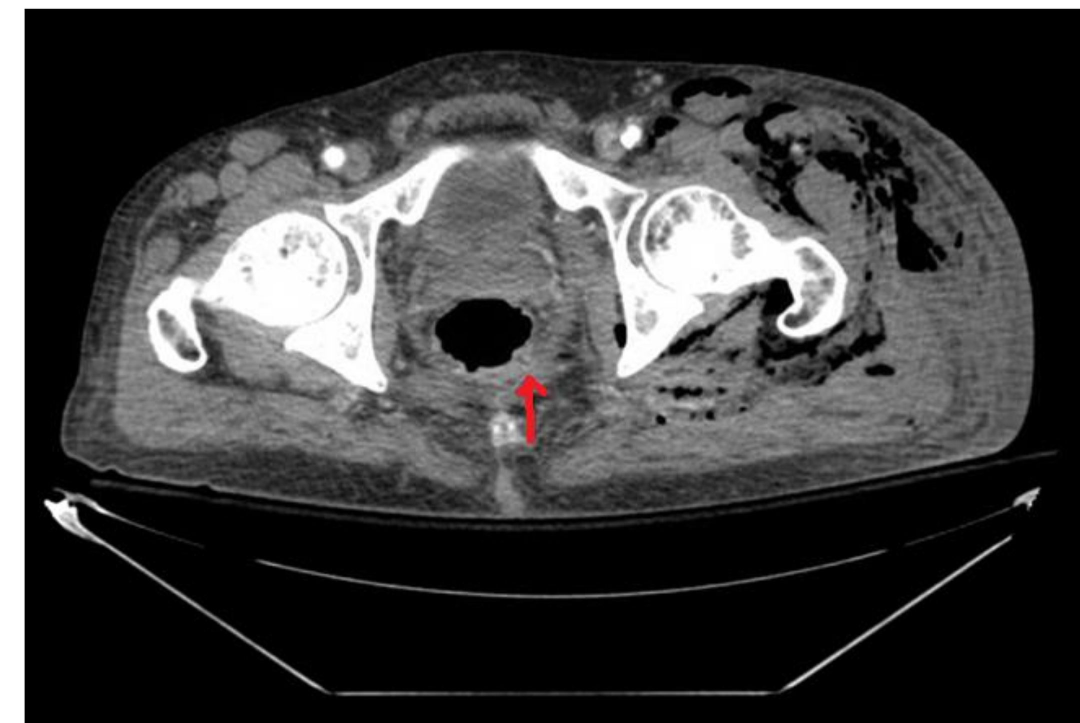
Methods

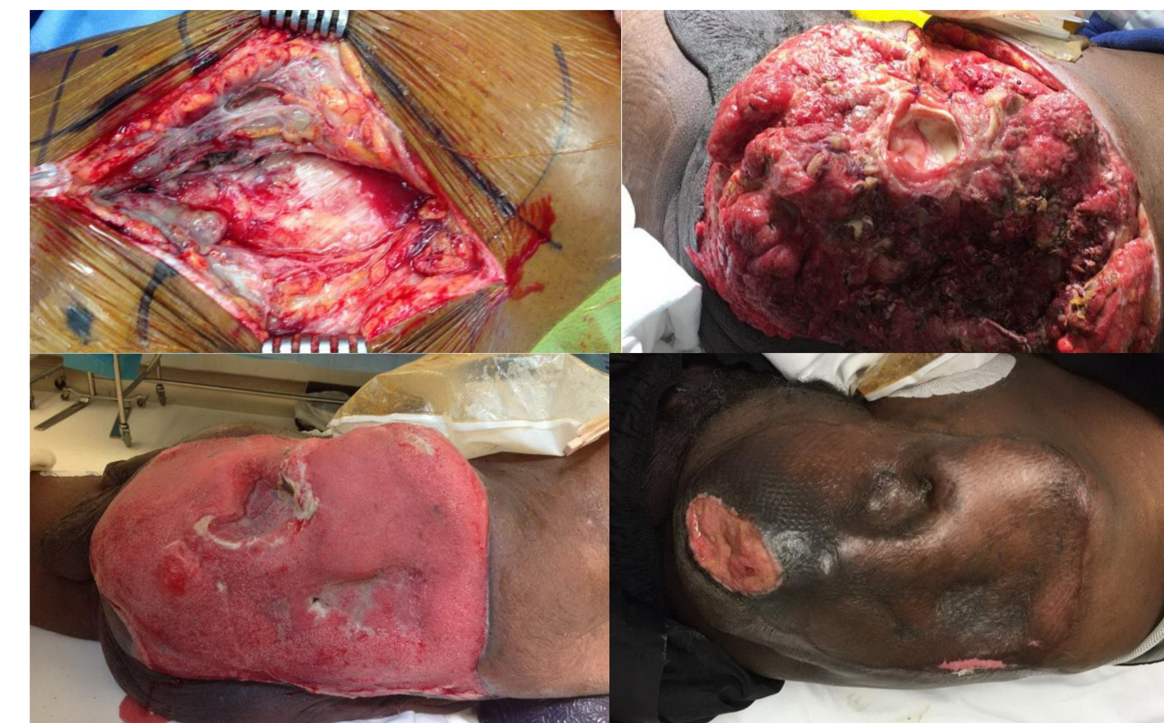
We searched PubMed for English-language articles containing either the terms "Fournier's gangrene," or "necrotizing fasciitis" plus either the terms "gastrointestinal," "bowel," or "perforation."

Patients from case reports and case series were identified as having atypical Fournier's gangrene (AFG) if they had necrotizing fasciitis of the thigh, abdomen, or lower extremities with radiographic or pathologic evidence of bowel injury. Patients were excluded if Fournier's gangrene was identified as the sole or primary diagnosis. Including our own case, a total of 47 patients with atypical Fournier's gangrene were found.

As comparator cohorts we used two recently published series of patients with typical Fournier's gangrene (Corcoran et al and Eskitascíglu et al). Statistical analysis was conducted using Student's t and chi-square tests.

Results





Left: Computed tomography scan of our patient's pelvis at presentation, demonstrating necrotizing fasciitis of the right thigh with diffuse gas formation. The arrow (center) identifies an enhancing fistula tract extending from the rectal wall in the area perforated by the ingested toothpick. **Right:** (clockwise from upper left). The appearance of the surgical site during the initial debridement, after hemipelvectomy, after initial skin grafting, and at follow-up in the surgery clinic 5 months later.

Predisposing factor for AFG:	No. patients (%)
Malignancy	15 (32%)
Diverticular disease	7 (15%)
Diabetes mellitus	6 (13%)
Recent surgery	5 (10%)
Nonsurgical trauma	4 (9%)
Chronic renal or liver disease	3 (6%)
Chronic steroid use	3 (6%)
Inflammatory bowel disease (Crohn's dz)	1 (2%)

Initial findings in AFG:	No. patients (%)
Pain	45 (95%)
Leukocytosis (>10k cells/ml)	26 (84%)*
Fever	29 (61%)
Nausea, vomiting, or diarrhea	12 (26%)
Altered mentation	7 (15%)

*Calculated from subset of patients with a reported WBC

Microbiology of cultures in AFG:	No. patients (%)
Gram-negative bacteria	28 (76%)
Gram-positive bacteria	24 (65%)
Anaerobic bacteria	14 (38%)
Fungi	3 (8%)
Multiple flora present	28 (76%)

	AFG Cohort N = 47	Corcoran et al N = 68	Eskitascioglu et al N = 80
Age (yrs)	60.7	55.8	53.5
% Male	63%	79%***	**95%***
Comorbidities:			
Diabetes Mellitus	13%	**53%***	**43%***
Malignancy	32%	NR	**4%***
Recent surgery	10%	NR	15%
Alcohol abuse	6%	NR	3%

*p < 0.001 versus AFG cohort
**p < 0.05 versus AFG cohort
***p = 0.064 versus AFG cohort
NR = not reported

	AFG Cohort N = 47	Corcoran et al N = 68	Eskitascioglu et al N = 80
Duration of symptoms prior to presentation (days)	8.6	6.6	5.5
Fever	61%	NR	**20%***
Pain	95%	NR	**64%***
Microbiology:			
Polymicrobial infection	76%	62%	**19%***
Outcome:			
Mean no. debridements	2.6	3.4	1.6
Mortality	28%	**10%****	**4%***

Conclusions

We propose that necrotizing fasciitis of the abdominal wall, flank or upper legs following gastrointestinal injury represents atypical Fournier's gangrene, the etiology, pathophysiology and microbiology of which closely resembles that of typical Fournier's gangrene.

Malignancy (typically colorectal), rather than diabetes mellitus, was the primary risk factor for the atypical form of Fournier's, and in some cases AFG was the malignancy's initial presentation. Diverticular disease and surgical or nonsurgical trauma to the GI tract were also common predisposing factors.

The increased mortality in patients with atypical form may be attributable to a greater burden of preexisting comorbidity, particularly including malignancy, in the AFG group. However, the higher mortality in AFG may reflect the failure to recognize necrotizing fasciitis of the abdominal wall, flank or thighs as a form of Fournier's, requiring immediate and often repeated surgical debridements.

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