HOẠI THƯ FOURNIER

TS.BS. MAI BÁ TIẾN DŨNG

TRƯỞNG KHOA NAM HỌC – BV BÌNH DÂN

ĐẶT VẤN ĐỀ

Jean Alfred Fournier

- Bauriennce: mô tả trường hợp hoại thư không rõ nguyên nhân vào năm 1764
- Jean Alfred Fournier: báo cáo ca đầu tiên vào năm 1883.
- Cấp cứu ngoại khoa tối khẩn.
- Hoại thư Fournier: khởi đầu đột ngột dữ dội, tiến triển hoại thư nhanh như tia sét đánh, tỷ lệ tử vong cao.

Smith GL, Bunker CB, Dinneen MD. Fournier's gangrene. Br J Urol 1998;81(3):347–355

ĐẶT VẤN ĐỀ

- Hoại thư Fournier: xuất phát từ đường tiết niệu sinh dục và tiêu hoá vùng đáy chậu, diễn tiến viêm mô da và mô mềm.
- Tiến triển của nhiễm trùng cực kỳ nhanh chóng và đặc trưng bởi sự hình thành các ổ nhiễm trùng tiến triển xâm lấn vào thành bụng, vùng chậu,và vùng sau phúc mạc…
- Tỉ lệ tử vong cao: 7,5% và 45% – tùy thuộc bệnh lý nền.
- Điều trị: chẩn đoán sớm + phẫu thuật nhanh chóng & triệt để + kháng sinh phổ rộng.
- Thành công nhờ: phối hợp đa mô thức điều trị.

[1] Smith GL, Bunker CB, Dinneen MD. Fournier's gangrene. Br J Urol 1998;81(3):347–355
[2] Sorensen MD, Krieger JN, Rivara FP, Broghammer JA, Klein MB, Mack CD et al. Fournier's Gangrene: population based epidemiology and outcomes.
[3] Hejase MJ, Simonin JE, Bihrle R, Coogan CL. Genital Fournier's gangrene: experience with 38 patients.

GIẢI PHẪU CƠ QUAN SINH DỤC NAM VÙNG ĐÁY CHẬU

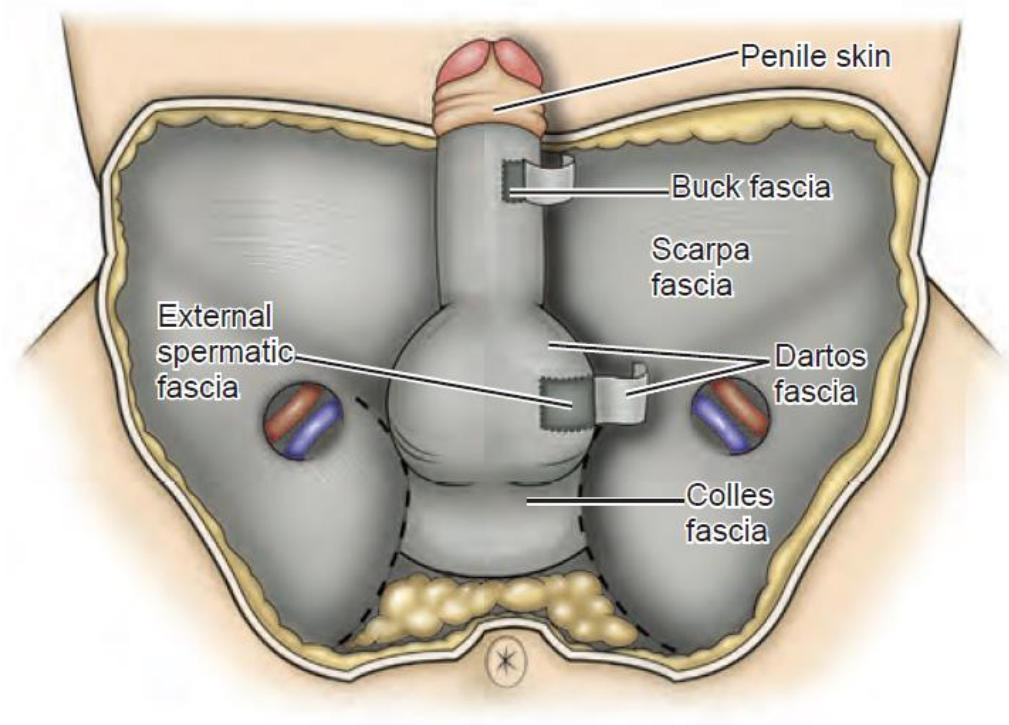


Fig. 83.1. Anatomic barriers to the spread of infection. (Modified from Kavoussi PK, Costabile RA. Disorders of scrotal contents: orchitis, epididymitis, testicular torsion, torsion of the appendages, and Fournier gangrene. In: Chapple CR, Steers WD, eds. *Practical urology: essential principles and practice.* London: Springer-Verlag; 2011.)

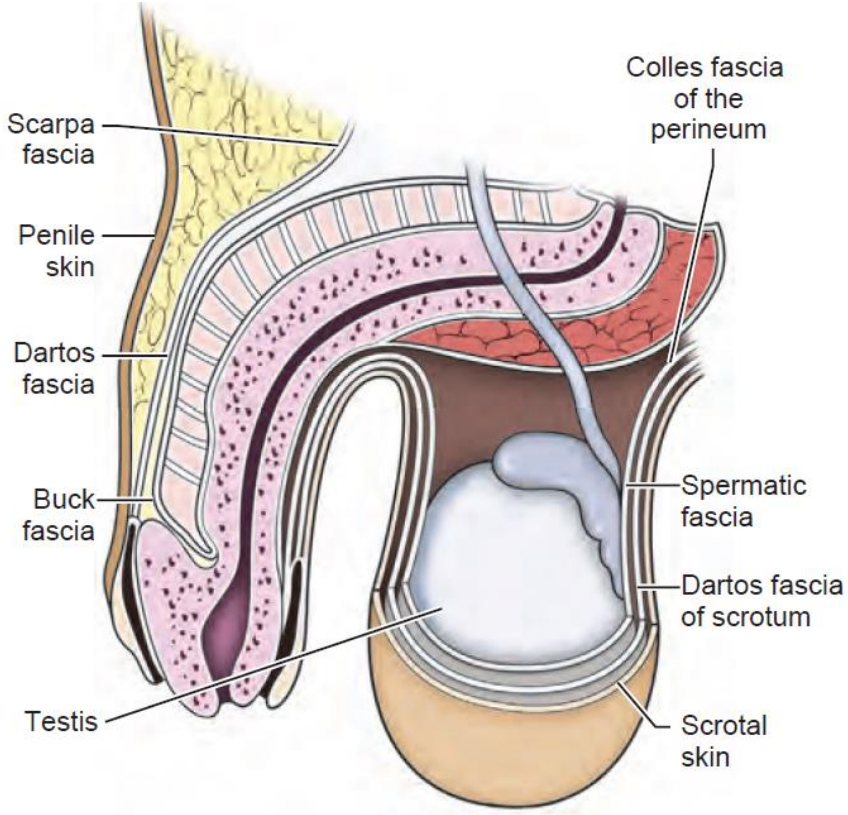


Fig. 83.2. Sagittal view of anatomic barriers to the spread of infection. (Modified from Kavoussi PK, Costabile RA. Disorders of scrotal contents: orchitis, epididymitis, testicular torsion, torsion of the appendages, and Fournier gangrene. In: Chapple CR, Steers WD, eds. Practical urology: essential principles and practice. London: Springer-Verlag; 2011.)

LÂM SÀNG

- Khởi phát da vùng bìu, niệu đạo, tầng sinh môn.
- Yếu tố: tiểu đường, suy giảm miễn dịch, chấn thương vùng chậu, bệnh lý vùng quanh hậu môn, bệnh lý hẹp niệu đạo.
- Triệu chứng đau bìu (94%) – sốt (70%) – triệu chứng đường tiểu (19%) – áp xe (11%) – các triệu chứng khác (8%)
- Diễn tiến vi khuẩn thâm nhập cân Buck, lan rộng theo cân Dartos của bìu- dương vật, phá vỡ cân Coles vùng chậu, lan đến cân Scarpa thành bụng.
- Tác nhân vi khuẩn: kỵ khí, *E. coli*, *Klebsiella*, *enterococci*, *Bacteroides*, *Fusobacterium*, *Clostridium*, *microaerophilic streptococci*.

(Cohen, 1986; Meleney, 1933; Miller, 1983)

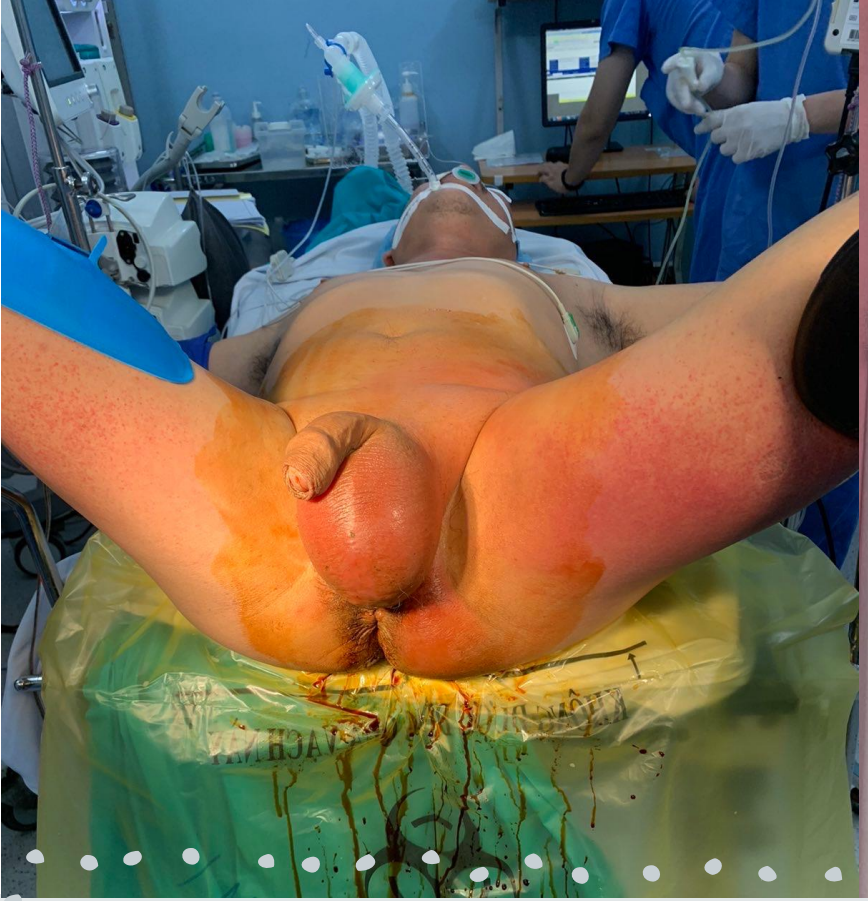
SINH BỆNH HỌC

- Vi khuẩn Gram (+): Group A Streptococci, *Staphylococcus aureus* - Vi khuẩn Gram (-): *E. Coli* & *Pseudomonas aeruginosa* thường gặp.
- Hoại thư Fournier: xuất hiện dấu hiệu chung của nhiễm trùng huyết, sự phá hủy mô nhanh chóng dẫn đến huyết khối mạch máu => thiếu máu cục bộ và hoại tử mô của mô mềm và lan vào các cân mạc.
- Yếu tố nguy cơ: tiểu đường, suy giảm miễn dịch, hẹp niệu đạo, bệnh lý ống hậu môn, béo phì, bàng quang thần kinh, chấn thương cột sống…
- Tổn thương không hồi phục

CHẨN ĐOÁN

- Triệu chứng đau & viêm mô tế bào vùng chậu, cơ quan sinh dục.
- Hội chứng nhiễm trùng nhiễm độc
- Phù nề vùng bìu
- Dấu hiệu hoại tử da từng điểm thường ở giai đoạn trễ.
- Tổn thương vùng hậu môn: áp xe, dò hậu môn, ung thư trực tràng.
- Tổn thương cơ quan sinh dục: hẹp lỗ sáo, hẹp niệu đạo, áp xe bìu

Sparenborg JD, Brems JA, Wood AM, Hwang JJ, Venkatesan K. Fournier's gangrene: a modern analysis of predictors of outcomes. Transl Androl Urol. 2019 Aug;8(4):374-378. [



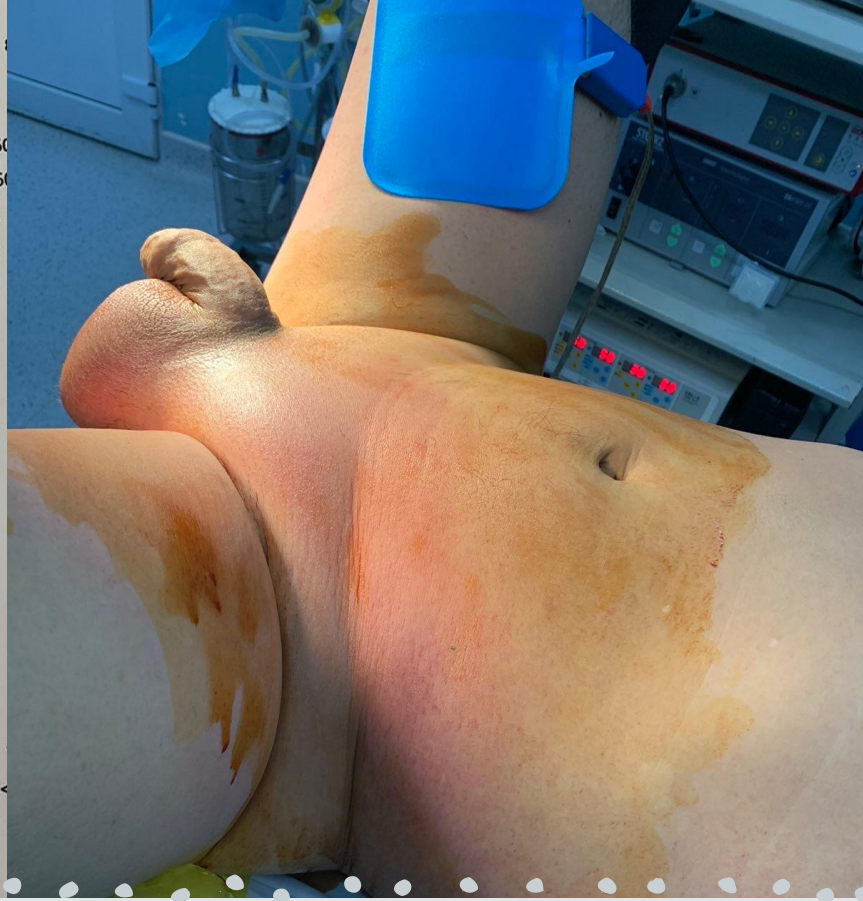
Sinh hoá máu

Urea	5.2	mmol/L	(1.7 -
Glucose	**15.5** *	mmol/L	(4.2 -
Creatinine	68	umol/L	(44 -
eGFR(MDRD)	111.46	mL/ph/1,73m²	(> 6
eGFR(CKD-EPI)	113.02	mL/ph/1,73m²	(> 6
AST (SGOT)	**78**	U/L	(BT <
ALT (SGPT)	27	U/L	(BT <

ước tiểu

ổng phân tích nước tiểu

URO	+ 2.0	mg/dl
GLU	+++ 500	mg/dl
KET	+++ 80	mg/dl
BIL	neg	mg/dl
PRO	± 0.15	g/L
NIT	neg	
pH	5.5	
BLD-Hem	neg	mg/dl
S.G	1.039	
LEU	neg	c/ul
A/C	**+ 150**	mg/gCr
P/C	**+ 0.30**	g/gCr



Diễn tiến hoại thư Fournier trên BN tiểu đường

Journal of *Personalized Medicine*

MDPI

Review

The Value of Fournier's Gangrene Scoring Systems on Admission to Predict Mortality: A Systematic Review and Meta-Analysis

Antonio Tufano [1,*], Piervito Dipinto [1], Francesco Passaro [2], Umberto Anceschi [3], Giorgio Franco [1], Rocco Simone Flammia [1], Flavia Proietti [1,3], Luca Antonelli [1], Giovanni Battista Di Pierro [1], Francesco Prata [4], Roberta Rullo [5], Sisto Perdonà [6] and Costantino Leonardo [3]

Conclusions: The higher scores of the FGSI, SFGSI, and UFGSI on admission were associated with mortality. Moreover, when comparing accuracy rates, the UFGSI exhibited the highest AUC value.

J. Pers. Med. 2023, 13, 1283. https://doi.org/10.3390/jpm13091283

Laor & cs (1995)

FGSI	High			Normal		Low			
	+4	**+3**	**+2**	**+1**	**0**	**+1**	**+2**	**+3**	**+4**
Temp. °C	>41	39–40.9	-	38.5–38.9	36–38.4	34–35.9	32–33.9	30–31.9	<39.9
Heart rate	>180	140–179	110–139	-	70–109	-	55–69	40–54	<39
Respiratory rate	>50	35–49	-	25–34	12–24	10–11	6–9	-	<5
Serum sodium mmol/L	>180	160–179	155–159	150–154	130–149	-	120–129	111–119	<110
Serum potassium mmol/L	>7	6–6.9	-	5.5–5.9	3.5–5.4	3–3.4	2.5–2.9	-	<2.5
Serum creatinine mg/100 mL	>3.5	2–3.4	1.5–1.9	-	0.6–1.4	-	<0.6	-	-
Hematocrit (HT)	>60	-	50–59.9	46–49.9	30–45.9	-	20–29.9	-	<20
Leukocytes total/mm^3 × 1000	>40	-	20–39.9	15–19.9	3–14.9	-	1–2.9	-	<1
Serum bicarbonate mmol/L	>52	41–51.9	-	32–40.9	22–31.9	-	18–21.9	15–17.9	<15

Yilmazlar & cs (2010)

UFGSI	High			Normal		Low			
	+4	**+3**	**+2**	**+1**	**0**	**+1**	**+2**	**+3**	**+4**
Temp. °C	>41	39–40.9	-	38.5–38.9	36–38.4	34–35.9	32–33.9	30–31.9	<39.9
Heart rate	>180	140–179	110–139	-	70–109	-	55–69	40–54	<39
Respiratory rate	>50	35–49	-	25–34	12–24	10–11	6–9	-	<5
Serum sodium mmol/L	>180	160–179	155–159	150–154	130–149	-	120–129	111–119	<110
Serum potassium mmol/L	>7	6–6.9	-	5.5–5.9	3.5–5.4	3–3.4	2.5–2.9	-	<2.5
Serum creatinine mg/100 mL	>3.5	2–3.4	1.5–1.9	-	0.6–1.4	-	<0.6	-	-
Hematocrit (HT)	>60	-	50–59.9	46–49.9	30–45.9	-	20–29.9	-	<20
Leukocytes total/mm^3 × 1000	>40	-	20–39.9	15–19.9	3–14.9	-	1–2.9	-	<1
Serum bicarbonate mmol/L	>52	41–51.9	-	32–40.9	22–31.9	-	18–21.9	15–17.9	<15

Lin, & cs (2014)

Dissemination score	- Fournier's gangrene confined to the urogenital and/or anorectal region, add "1" - Fournier's gangrene confined to the pelvic region, add "2" - Fournier's gangrene extending beyond the pelvic region, add "6"
Age score	- Age ≥ 60 years, add "1" - Age < 60 years, add "0"

SFGSI	High			Normal		Low			
Serum potassium mmol/L	>7	6–6.9	-	5.5–5.9	3.5–5.4	3–3.4	2.5–2.9	-	<2.5
Serum creatinine mg/100 mL	>3.5	2–3.4	1.5–1.9	-	0.6–1.4	-	<0.6	-	-
Hematocrit (HT)	>60	-	50–59.9	46–49.9	30–45.9	-	20–29.9	-	<20

CẬN LÂM SÀNG

- Công thức máu
- Đường huyết
- Chức năng thận
- Cấy máu
- Siêu âm doppler: dễ thực hiện, đặc hiệu
- CT???

Fournier Gangrene in Men and Women: Appearance on CT, Ultrasound, and MRI and What the Surgeon Wants to Know

David H. Ballard, MD[1], Parisa Mazaheri, MD[1], Constantine A. Raptis, MD[1], Meghan G. Lubner, MD[2], Christine O. Menias, MD[3], Perry J. Pickhardt, MD[2], and Vincent M. Mellnick, MD[1]

Canadian Association of Radiologists Journal
2020, Vol. 71(1) 30-39

DOI: 10.1177/0846537119888396
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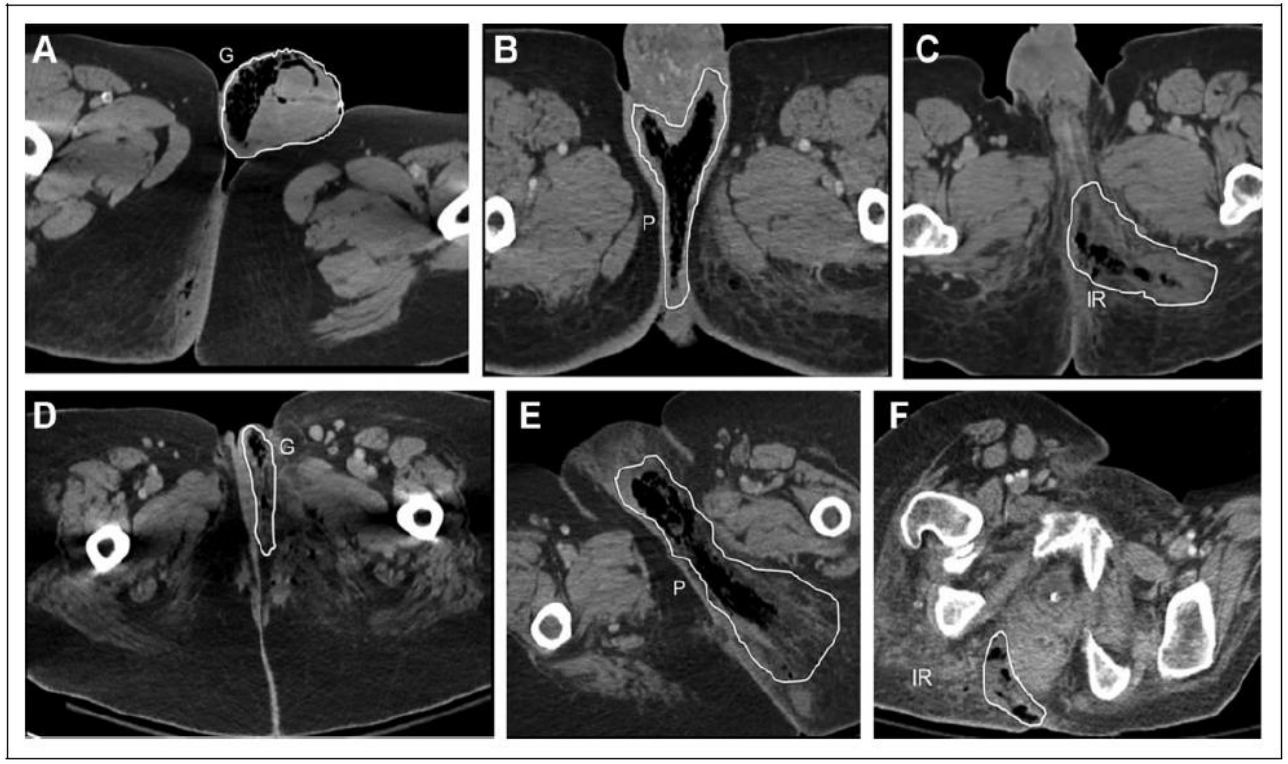


Figure 1. Surgically proven Fournier gangrene (FG) in 6 different patients, including 3 men (A-C) and 3 women (D-F) demonstrated in unenhanced (A) and contrast enhanced (B-F) axial CT images. The 3 areas of anatomic involvement to satisfy the definition of FG as a necrotizing fasciitis centered in or involving the genitals (G; illustrated in A and B), perineum (P; illustrated in B and E), and ischiorectal fossa (IR; illustrated in C and F) are illustrated in both men (A-C) and women (D-F). Women with FG are often more obese compared to their male counterparts which is illustrated in the 3 female patients (D-F), each of whom had a BMI >55. BMI, body mass index; CT, computed tomography.

Table 1. Computed Tomography Findings, Definitions, and Scores in the Necrotizing Soft-Tissue CT Scoring System.[a]

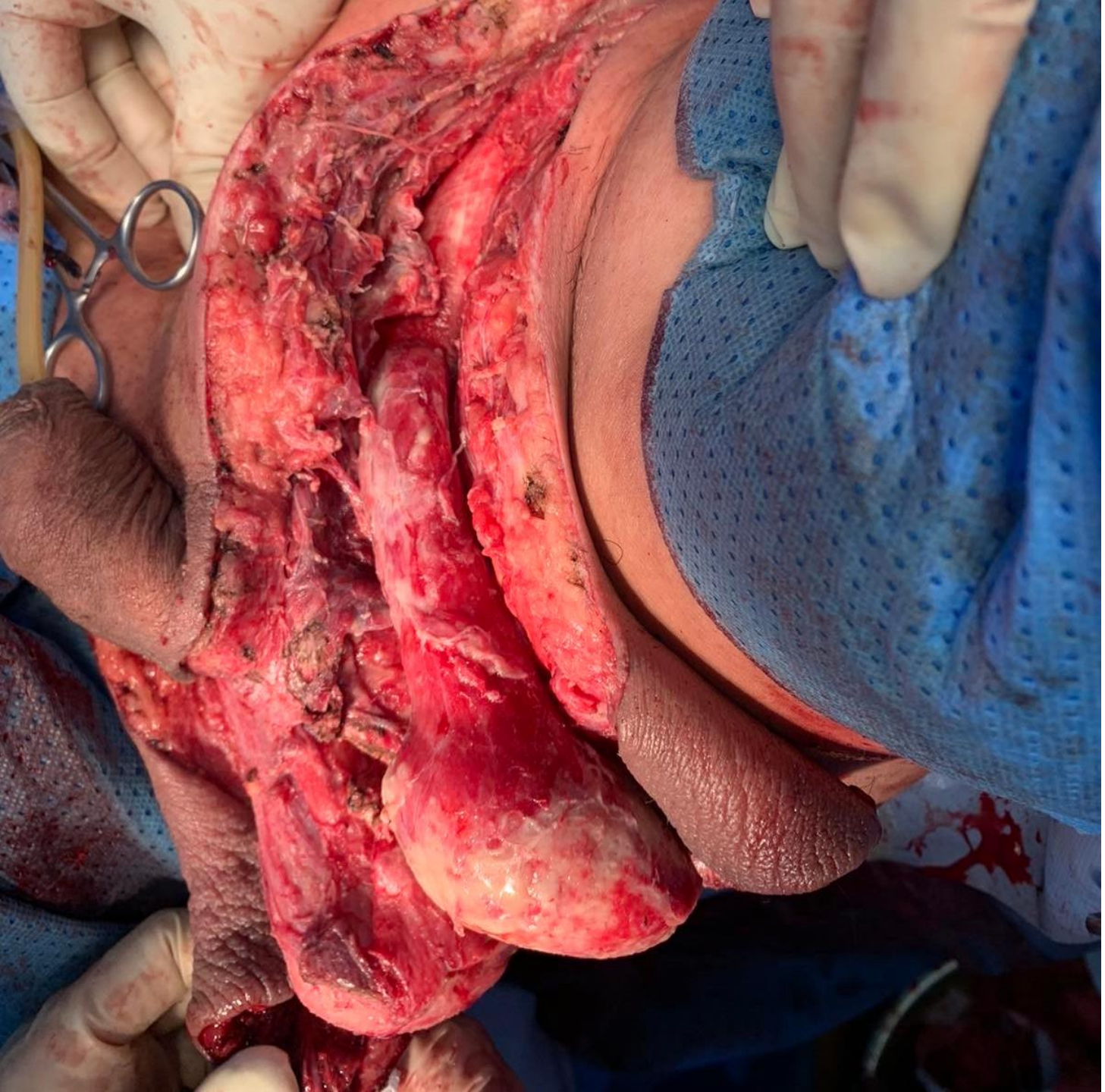
CT Finding	Definitions	Points for CT Scoring System
Fascial air	Locules or tracts of air density through along fascial planes	5
Muscle/fascial edema	Thickening/indistinctness of fascial surface or muscle. Asymmetric appearance compared to contralateral side, if applicable.	4
Fluid tracking	More defined collection of fluid dissecting through soft-tissue planes; more than would be accounted for by edema	3
Lymphadenopathy	Prominence of regional lymph nodes, asymmetric to the contralateral side when applicable. No specific size threshold was used.	2
Subcutaneous edema	Edema underlying an area of thickened skin.	1

Abbreviation: CT, computed tomography.
[a]A score of >6 is suggestive of necrotizing fasciitis. Imaging examples are shown in Figure 8. Reproduced with permission from Ballard et al.[1]

XỬ TRÍ

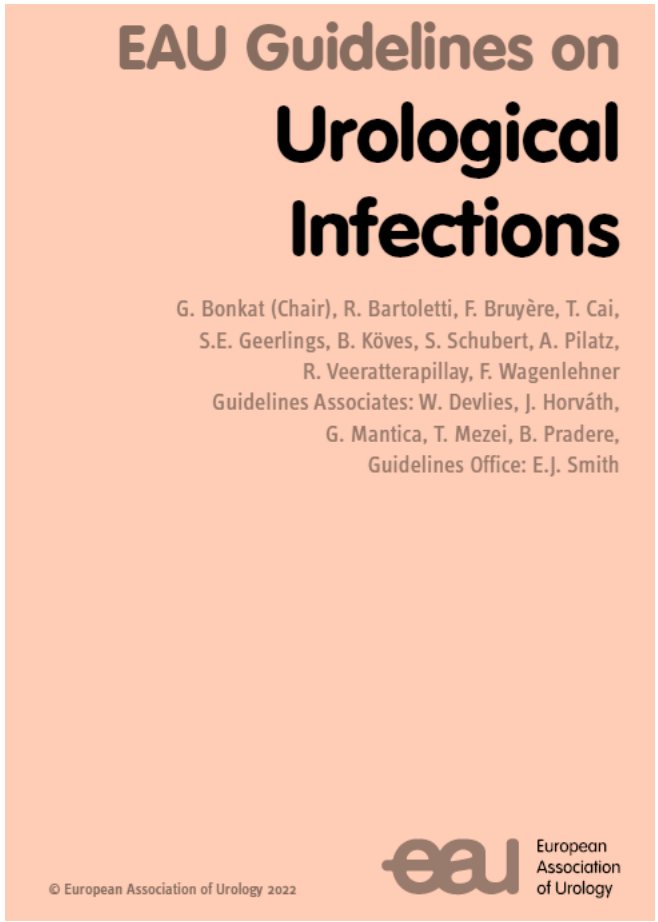
- Phẫu thuật mở rộng vùng bìu – tầng sinh môn
- Mở bàng quang ra da
- Mở hậu môn tạm
- Kháng sinh tích cực
- Đa mô thức

Wong CH, Chang HC, Pasupathy S, Khin LW, Tan JL, Low CO. Necrotizing fasciitis: clinical presentation,microbiology, and determinants of mortality. J Bone Joint Surg Am. 2003 Aug;85(8):1454-60.
EAU Urological Infections Guidelines Panel (2022)



- Mở rộng vết mổ tối đa.
- Lưu ý đường rạch da có thể lên đến vùng bẹn, đến khi thấy mô lành
- Không được cắt tinh hoàn.
- Phẫu thuật lần thứ 2, 3 ..

KHÁNG SINH



Recommendations	Strength rating
Start treatment for Fournier's gangrene with broad-spectrum antibiotics on presentation, with subsequent refinement according to culture and clinical response.	Strong
Commence repeated surgical debridement for Fournier's gangrene within 24 hours of presentation.	Strong
Do not use adjunctive treatments for Fournier's gangrene except in the context of clinical trials.	Weak

Table 11: Suggested regimens for antimicrobial therapy for Fournier's Gangrene of mixed microbiological aetiology adapted from [394]**.**

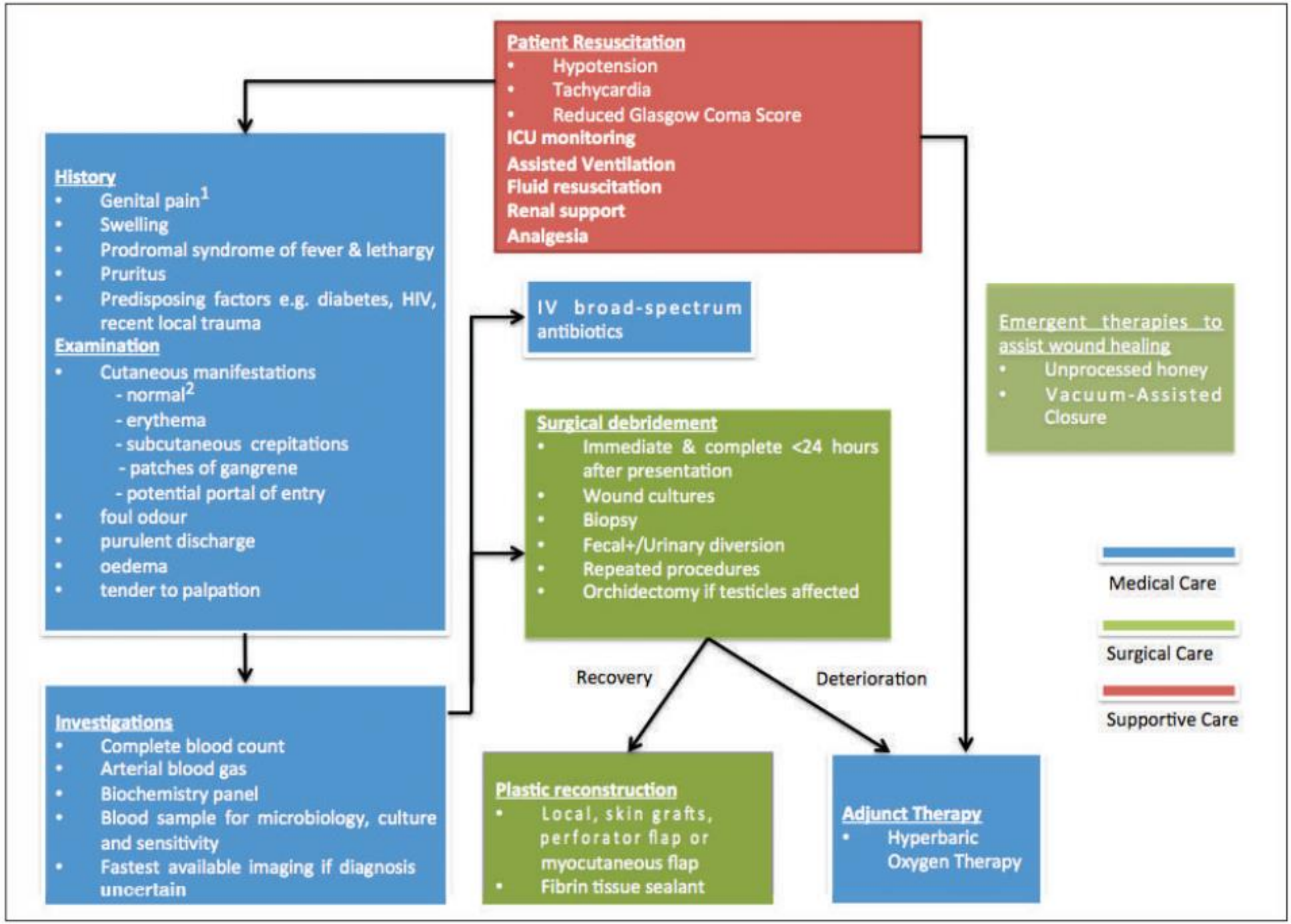
Antimicrobial	Dosage
Piperacillin-tazobactam plus Vancomycin	4.5 g every 6-8 h IV 15 mg/kg every 12 h
Imipenem-cilastatin	1 g every 6-8 h IV
Meropenem	1 g every 8 h IV
Ertapenem	1 g once daily
Gentamicin	5 mg/kg daily
Cefotaxime plus metronidazole or clindamycin	2 g every 6 h IV 500 mg every 6 h IV 600-900 mg every 8 h IV
Cefotaxime plus fosfomycin plus metronidazole	2 g every 6 h IV 5 g every 8 h IV 500 mg every 6 h IV

IV = intravenous.

Fournier's gar

Ariana Singh, Kamran A

MRC Centre for Transplantatic
Department of Urology, Guy's



KẾ HOẠCH CHĂM SÓC

- Chăm sóc vết thương – vai trò của điều dưỡng rất quan trọng.
- Tiến hành cắt lọc hay mở rộng vết mổ trong hậu phẫu: cần chủ động.
- Chế độ dinh dưỡng
- Điều trị nâng đỡ

KẾT LUẬN

- Hoại thư Fournier-hiếm gặp nhưng rất nghiêm trọng với đặc điểm" tiến triển hoại thư nhanh như tia sét đánh"
- *Vai trò của điều dưỡng*: *lập kế hoạch và thực hiện chăm sóc thích hợp.*
- *Ngâm rửa vết thương ngay trước khi thay băng*+kỹ thuật chăm sóc vết thương:*kinh nghiệm, kỹ năng thực hành và sự nhạy bén của người điều dưỡng góp phần thành công cho kết quả điều trị.*

TẠO HÌNH CƠ QUAN SINH DỤC NAM

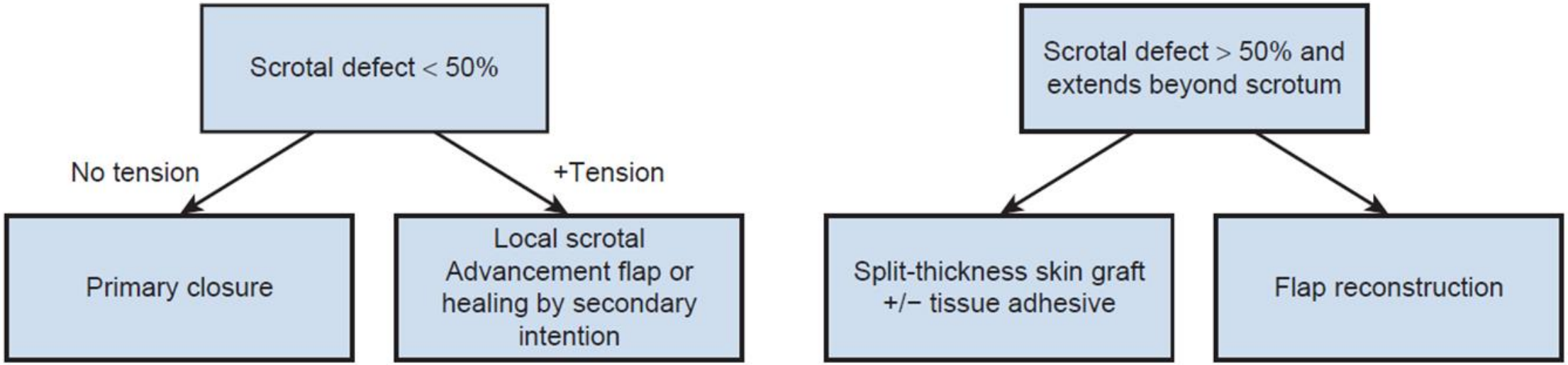
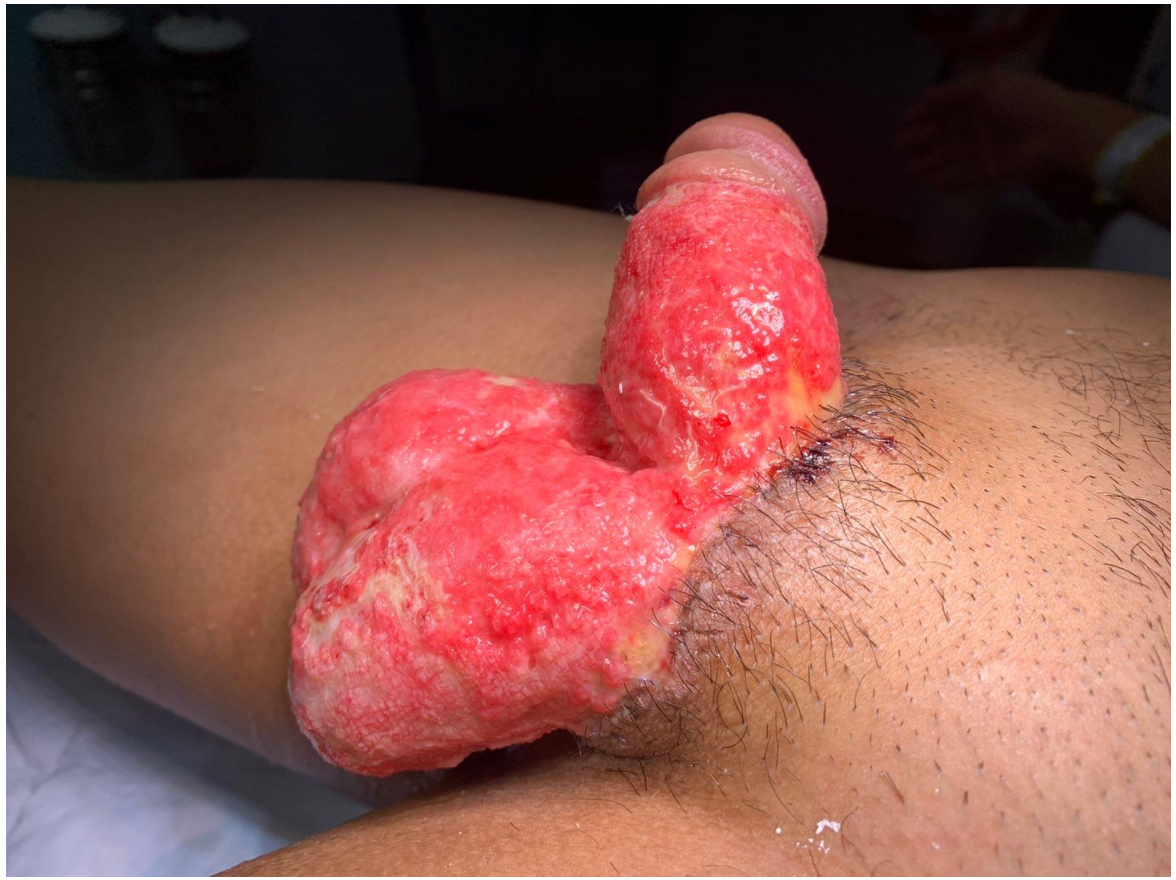
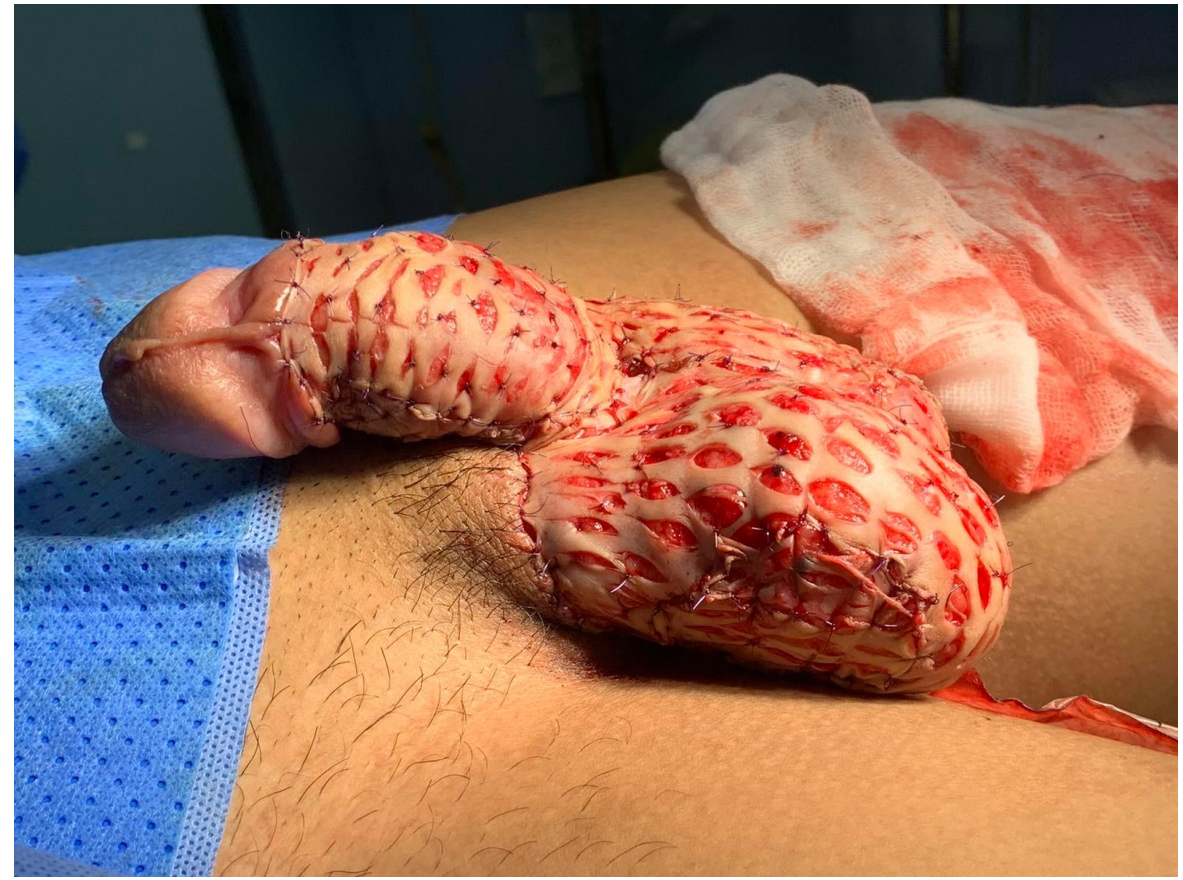


Fig. 83.4. Algorithm for the management of scrotal reconstruction following scrotal debridement. (Modified from Karian LS, Chung SY, Lee ES. Reconstruction of defects after Fournier gangrene: a systematic review. *Eplasty.* 2015;15:e18. eCollection 2015.)





Cureus

Open Access Review Article

DOI: 10.7759/cureus.38953

A Comprehensive Literature Review of Fournier's Gangrene in Females

Aisha Khalid [1], Sahana Devakumar [2], Ivan Huespe [3], Rahul Kashyap [1, 4, 5], Imran Chisti [6]

1. Research, Harvard Medical School, Boston, USA 2. Internal Medicine, Jawaharlal Nehru Medical College, Belgaum, IND 3. Critical Care, Hospital Italiano de Buenos Aires, Buenos Aires, ARG 4. Research, Global Remote Research Program, Saint Paul, USA 5. Critical Care Medicine, Mayo Clinic, Rochester, USA 6. Critical Care Medicine, University of Miami, Coral Gables, USA

Corresponding author: Aisha Khalid, aisha.khalid000@gmail.com

Received 04/10/2023
Review began 04/30/2023
Review ended 04/30/2023
Published 05/12/2023

- Fournier gangrene (FG) is a rare but rapidly progressing disease with a higher mortality rate in women as compared to men.
- Reviewed literature from 2002 to 2022 and selected 22 studies, 134 female patients with a mean age of 55±6 years.
- The mean length of stay in the hospital was 24±11 days, and the gross mortality rate was 27 %. In conclusion, while females have a low incidence rate of FG, they carry a higher mortality rate. Lack of cardinal signs and delayed presentation to the hospital from the onset of symptoms are some possible causes for the increased mortality rate along with the disease process being under-recognized in women. A

Fournier's Gangrene: A Rare Infectious Entity in an Adolescent with Type II Diabetes

Global Pediatric Health
Volume 9: 1–4

DOI: 10.1177/2333794X221128416
journals.sagepub.com/home/gph
SAGE

Sara C. Sanders, MD[1,2], Archana Balamohan, MD[1,2], Emily S. Smith, MD[1,2], Maxwell D. Taylor, MD[1,2], and Rebecca M. Cantu, MD, MPH[1,2]

Abstract

Fournier's gangrene is a rapidly progressive necrotizing fasciitis of the perineum and external genital organs that is uncommon in the pediatric age group. We present a case report of a 17-year-old obese male with comorbidities of type II diabetes, hypertension, and tobacco use, who presented to the hospital with vague systemic symptoms and pain in the gluteal area. On examination, he was febrile and had erythema and induration of his left scrotum, perineum, and gluteal region. Imaging obtained due to rapid progression of symptoms was consistent with a diagnosis of Fournier's gangrene. He was managed with broad-spectrum antibiotics, aggressive surgical debridement, and a

Pediatric surgical image

Fournier's gangrene in a child with congenital genitourinary anomalies

Thomas P. Cundy, Hilary A.P. Boucaut, Christopher P. Kirby*

Department of Paediatric Surgery, Women's and Children's Hospital, Adelaide, South Australia, Australia

Received 28 October 2011; revised 6 January 2012; accepted 9 January 2012

Key words:
Fournier's gangrene;
Children;
Pediatric;
Paediatric;
Buried penis;
Hypospadias

Abstract Fournier's gangrene is a rare urologic emergency in childhood that requires prompt diagnosis to deliver definitive and supportive care. Host susceptibility risk factors differ between adult and pediatric age groups with affected children usually otherwise systemically healthy. We present a case of Fournier's gangrene in a 2-year-old, from a genitourinary source of sepsis secondary to previously unreported genitourinary anatomical anomalies of congenital buried penis and hypospadias. Illustrative applied anatomy identifies the pathogenesis of this case, aiding recognition and understanding of this rapidly progressive and destructive pathology.

Fournier gangrene in an infant, complicated with severe sepsis and liver dysfunction: A case report

Ilirjana Bakalli, Saimir Heta, Ermira Kola, Ermela Celaj

Specialty type: Medicine, research and experimental

Provenance and peer review: Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification
Grade A (Excellent): 0
Grade B (Very good): 0
Grade C (Good): C, C, C
Grade D (Fair): 0
Grade E (Poor): 0

P-Reviewer: Leowattana W, Thailand; Manrai M, India

Received: July 2, 2023
Peer-review started: July 2, 2023
First decision: July 28, 2023
Revised: August 9, 2023
Accepted: September 6, 2023
Article in press: September 6, 2023
Published online: October 26, 2023

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Abstract

BACKGROUND

Fournier gangrene is a rare, life-threatening infection characterized by necrotizing fasciitis in the perineal, genital and/or lower abdominal regions. Despite its rarity, the unfavorable prognosis associated with this disease is dependent on the timing of medical care.

CASE SUMMARY

A 3-month-old boy was admitted to our pediatric intensive care unit in critical condition after a 5-day history of fever and scrotal erythema with breaching skin lesions and swelling. Despite ambulatory antibiotic treatment, the child's clinical condition deteriorated. At the time of admission, the child had necrotizing scrotal fasciitis that had spread to the abdomen. Following reanimation, the surgeon decided on an immediate intervention to rule out testicular torsion and to debride the affected area. Despite optimal antibiotic and supportive therapy, the patient developed severe sepsis with liver dysfunction, making treatment more challenging.

CONCLUSION

Recognizing Fournier gangrene, prompt referral to pediatric surgery, and appropriate antibiotic coverage are critical for avoiding sepsis and multiorgan dysfunction.

Key Words: Fournier gangrene; Infant; Early diagnosis; Sepsis; Liver dysfunction; Case report

KẾT LUẬN

- Hoại thư Fournier - hiếm gặp nhưng rất nghiêm trọng với đặc điểm "tiến triển hoại thư nhanh như tia sét đánh"
- Lập kế hoạch và thực hiện chăm sóc thích hợp.
- Kinh nghiệm và thái độ xử trí .

CHÂN THÀNH CÁM ƠN