The truth...bit by bit

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Case Presentation of Mr. AF

- Asked to review patient in ED presenting with “sepsis of unknown origin”

- HPI
  - 42 M presented 7/2/17
  - Fevers, malaise, night sweats, and rigors for ~2 weeks
  - Abdominal pain (colicky, constant, generalised) ~3 days

Case Presentation of Mr. AF

- HPI
  - No back or joint pain
  - No chest pain, cough, or dyspnoea
  - No coryza or sore throat
  - No diarrhoea, nausea, or vomiting
  - No urinary symptoms

Case Presentation of Mr. AF

- PMH:
  - *Chlamydia trachomatis* urethritis (2001)
  - Q fever (~2000)
  - Reconstruction of right knee (2012, 2014)
  - Scarlet fever (~1980)
- Medications:
  - None
- Drug hypersensitivities:
  - None

Case Presentation of Mr. AF

- Social history:
  - Smoking: Current, 15-20 cigarettes/day
  - EtOH: None
  - Illicit drug use: Crystal methamphetamine ingested every 1-2 months, last use ~1 month ago, never injected or smoked

Case Presentation of Mr. AF

- Social history:
  - Employment:
    - Labourer currently (NorthConnex)
    - Abattoir worker previously
  - Living situation:
    - Strathfield (friend's house), moved from Bourke in January 2017
    - 4 children reside with ex-wife in Bourke

Case Presentation of Mr. AF

- Social history:
  - Animal contacts:
    - None
  - Travel history:
    - Domestic travel to Queensland (Gold Coast and Toowoomba) January 2016
    - International travel to Canada and USA ~2001

Case Presentation of Mr. AF

- Examination
  - Vital signs:
    - HR: 78 bpm
    - BP: 115/70 mmHg
    - RR: 18 breaths/min
    - S_pO_2: 98% (room air)
    - T: 38.2 °C

Case Presentation of Mr. AF

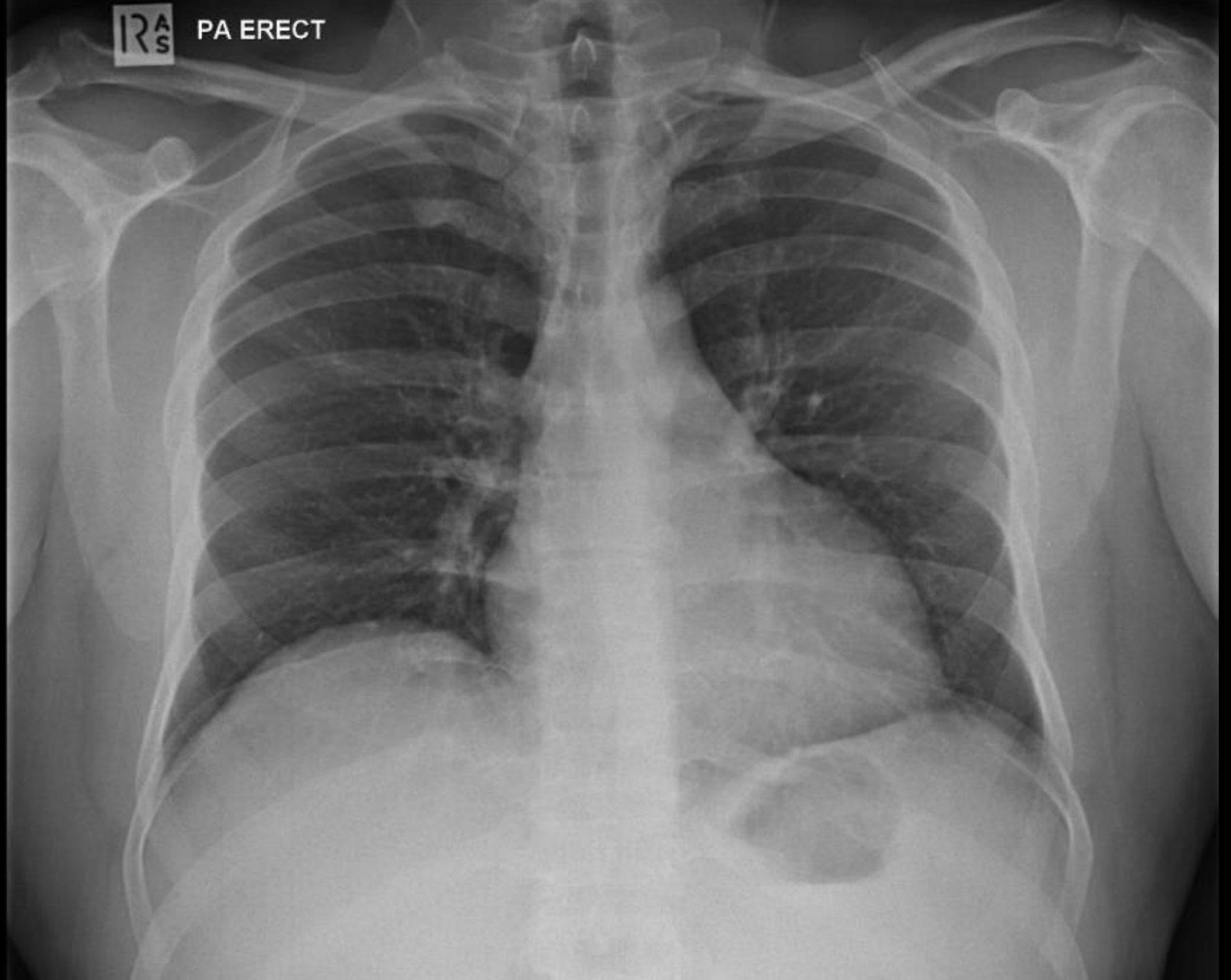
- Examination
  - Gastrointestinal:
    - Abdomen soft
    - Murphy's sign negative
    - Tenderness to palpation, percussion, and rebound over right iliac fossa
  - Cardiovascular, musculoskeletal, and respiratory:
    - NAD

Case Presentation of Mr. AF

- Investigation findings:
  - EUC, CMP: N
  - LFT:
    - Bilirubin 5 µM
    - Albumin 35 g/L
    - Protein 80 g/L
    - ALP 60 IU/L
    - GGT 94 IU/L
    - ALT 141 U/L
    - AST 36 IU/L
  - Lipase: 14 IU/L

Case Presentation of Mr. AF

- Investigation findings:
  - FBC:
    - WCC 11.9 (Nϕ 7.8, Mϕ1.7, Eϕ 0.1, Bϕ 0.0)
    - Hb 122 g/L
    - PtC 203
  - CRP 264 mg/L
  - X-ray chest: NAD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Case Presentation of Mr. AF

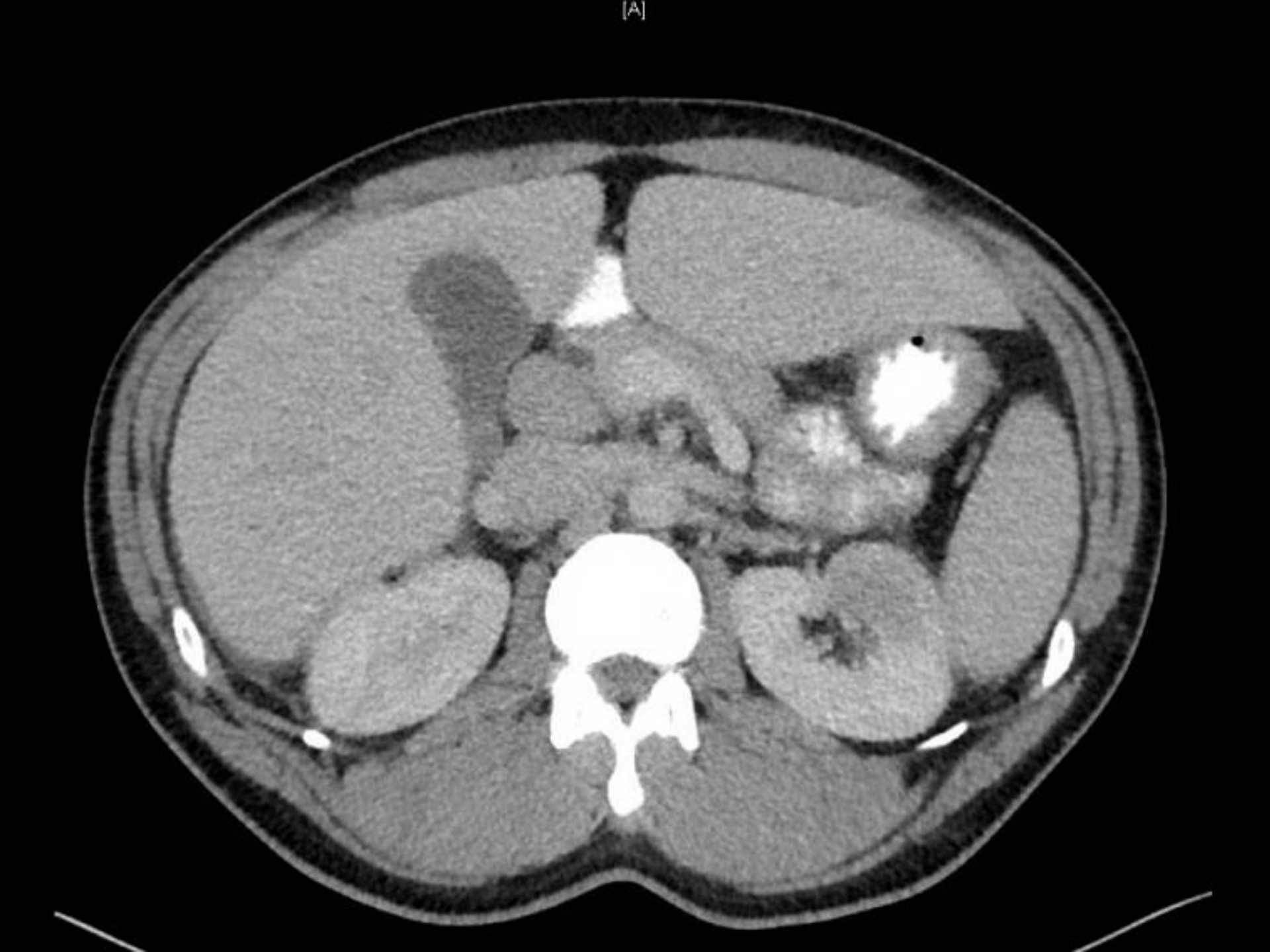
- Impression:
  - Sepsis and right iliac fossa peritonitis – appendicitis to be excluded
- Suggest:
  - Blood culture and urine m/c/s
  - Ceftriaxone + metronidazole
  - CT abdomen + pelvis
  - Surgery review for admission
- Progress
  - Colorectal Surgery team review and admission
  - CT abdomen and pelvis

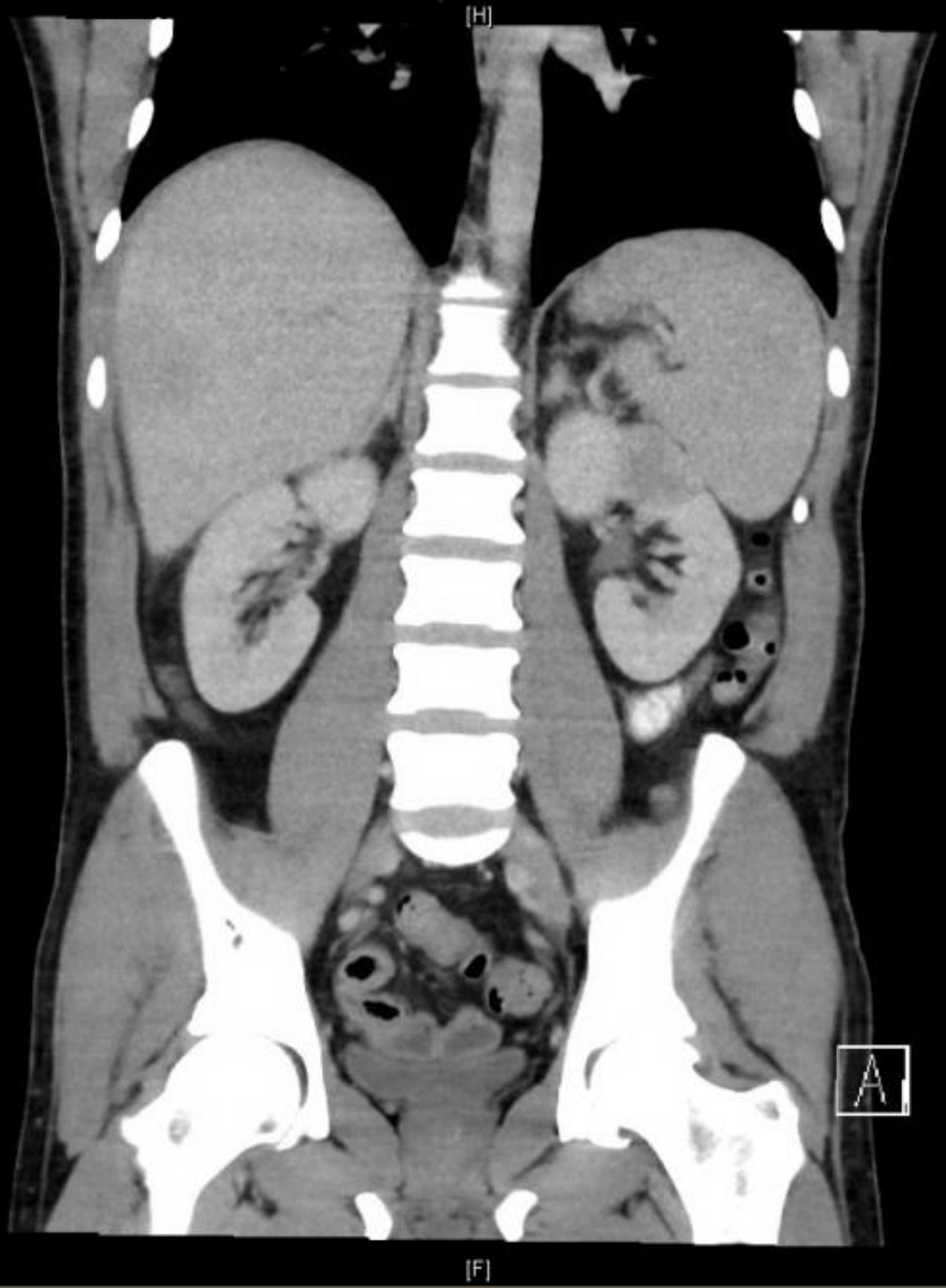
Case Presentation of Mr. AF

- Progress
  - Colorectal Surgery team review and admission
  - CT abdomen and pelvis


[A]


[H]
A
[F]


[A]


[H]
A
[F]

[A]

Case Presentation of Mr. AF

- CT abdomen and pelvis 7/2/17
  - Liver: Poorly-defined hypodense subcapsular lesion (56 x 31 x 47 mm) in segment 6/7 with periportal oedema and subphrenic fluid ?hepatic abscess
  - Left kidney: Poorly-defined hypodense lesion (30 x 28 x 34 mm) in upper pole ?abscess, infarct, or neoplasm
  - Caecum: Mural thickening for ~50 mm with mild fat stranding and numerous small pericolic lymph nodes ?cancer ?colitis
  - Appendix: Fluid-filled and mildly thickened (8 mm diameter) ?obstruction by caecal abnormality

Case Presentation of Mr. AF

- US abdomen 8/2/17
  - Appendix and caecum: Hyperaemia and thickening without peristalsis ?colitis
  - Liver: Hypoechoic subcapsular lesion (3.6 x 4.2 x 6.5 cm, 51ml) in segment 6 with porta hepatis lymphadenopathy but without internal blood flow ?abscess
  - Left kidney: No lesion demonstrated

Case Presentation of Mr. AF

- Summary
  - 42 M with subacute abdominal pain/tenderness and sepsis and caecal, kidney, and liver lesions on imaging
- Differential diagnoses?
- Difference between CT and US findings in left kidney?

Radiology. 1989 Jun;171(3):703-7.

Bacterial renal infection: role of CT.

Soulen MC[1], Fishman EK, Goldman SM, Gatewood OM.

- Retrospective study of 62 patients hospitalised with acute renal infections
- 15 patients with renal abscesses investigated with both CT and US
- Computed tomography
  - Sensitivity: 93% (14/15)
  - Specificity: 100% (15/15)
- Ultrasonography
  - Sensitivity: 47% (7/15)
  - Specificity : 100% (15/15)

Case Presentation of Mr. AF

- Blood cultures x 2 sets: No growth
- Urine m/c/s: negative
- CA19.9: 7 kU/L (NR: ≤37 kU/L)
- CEA: 0.9 µg/L (NR: ≤3 µg/L)

Case Presentation of Mr. AF

- Faeces bacterial PCR

09-02-2017 13:30	Faeces Bacterial Screen	* See Below
	Faeces Microscopy	NEG
	Salmonella DNA	Not Detected
	Shigella DNA	Not Detected
	Campylobacter DNA	Not Detected
	Clostridium difficile Detection	NEG

Case Presentation of Mr. AF

- Further investigation findings:
  - US-guided drainage of ~60 ml blood-stained pus from liver lesion
    - Cytology: Neutrophils and lymphocytes in a background of degenerate debris, no malignant cells seen
    - Microscopy and culture: Pus cells +++, no organisms seen, no growth
- Antibiotic regimen alteration?
- Additional investigations?

Case Presentation of Mr. AF

- Further investigation findings:
  - *Entamoeba histolytica* serology: 320 - positive
  - Faeces parasite DNA PCR: Not detected

Faeces Parasite Screen	See Below
Giardia intestinalis DNA	Not Detected
Cryptosporidium spp. DNA	Not Detected
D. fragilis DNA	Not Detected
E. histolytica DNA	Not Detected

  - Pus *Entamoeba histolytica* DNA PCR: Detected
  - Urine *Entamoeba histolytica* DNA PCR: Not detected

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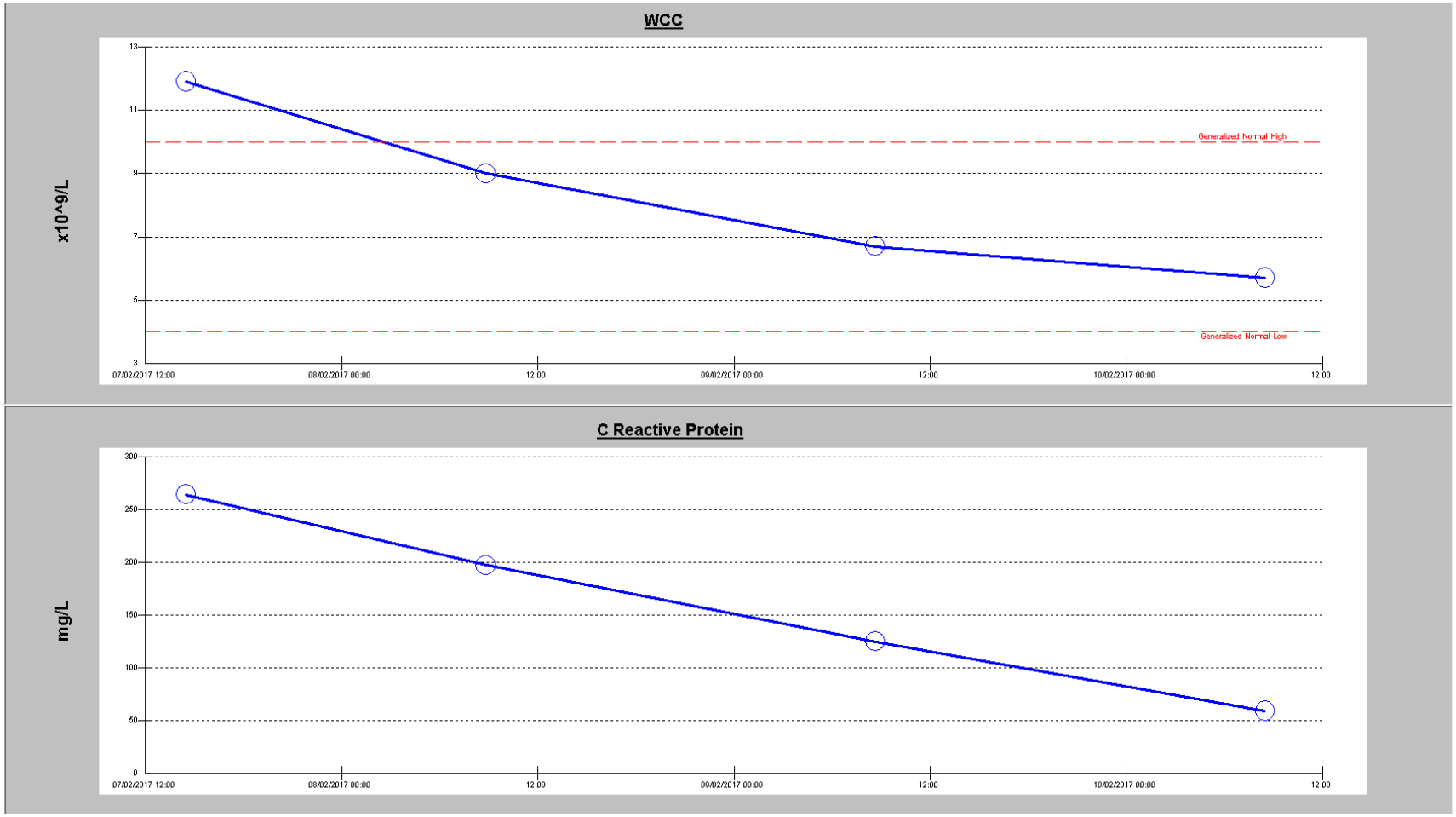
- Progress:
  - Ceftriaxone ceased
  - Metronidazole dose increased to 800 mg PO q8h for 10 days

Case Presentation of Mr. AF

- Progress:



Case Presentation of Mr. AF

- Sexual history (by myself):
  - Females only
  - 6 sexual partners in the past 6 months
  - Oral and vaginal sex
  - Condom use inconsistently
  - No sex worker contact

Case Presentation of Mr. AF

- Sexual history revisited (by Tom Gottlieb):

Case Presentation of Mr. AF

- Sexual history revisited (by Tom Gottlieb):
  - “I’ve been seeing an Asian sheila”
  - “She’s a “working lady” who travels between Sydney and Bourke on the train”
  - “But I don’t pay her”
  - “I haven’t put it in anyone’s bum”

Case Presentation of Mr. AF

- Further investigation findings:

09-02-2017 10:28	Hepatitis A Antibodies IgM	Negative.
	Hepatitis A Antibodies IgM Interp	Hepatitis A Antibodies IgM Interp
	Hepatitis B Surface Antigens	Negative.
	Hepatitis B Surface Antibodies	* 315 mIU/mL
	Hepatitis B Core Antibodies	Positive.
	Hepatitis C Antibodies	# @ Positive.
	HIV 1/2 Ab	# Negative.
	HIV 1/2 Ab	# Negative.
	Syphilis Summary	Syphilis Summary
	Syphilis Antibodies EIA Screen	* Negative
09-02-2017 10:28	HCV Supplementary Assay (EIA)	@ Positive

Case Presentation of Mr. AF

- Further investigation findings:

10-02-2017 12:55	Specimen Source	First Void Urine
	Specimen Source	First Void Urine
	Chlam.trachomatis DNA	* Not Detected
	N.gonorrhoeae DNA	* Not Detected

Case Presentation of Mr. AF

- Progress
  - Discharged from hospital 10/2/17
  - Colonoscopy 22/2/17 – did not attend
  - CT abdomen + pelvis 10/3/17
  - Follow-up ID Clinic 13/4/17 for review and paromomycin – did not attend, no response despite multiple phone calls and voicemail messages

Case Presentation of Mr. AF

- CT abdomen + pelvis 10/3/17
  - Liver: Abscess size decreased (52 x 23 x 35 mm) in segment 6/7
  - Kidneys: Left renal abscess resolution
  - Caecum: Mural thickening resolved

Amoebiasis epidemiology

- Prevalence
  - 4-40% in endemic areas (Africa, Asia, Central and South Americas)
  - 0.2-10% in non-endemic areas
- Risk factors
  - Endemic area migration or travel
  - HIV infection
  - Institutionalisation
  - MSM

Amoebiasis microbiology

- *Entamoeba histolytica* ± *E. moshkovskii* pathogenic
- All other Entamoeba species (e.g. *E. dispar*) non-pathogenic
- Transmission
  - Faecal-oral
  - Sexual
    - Oral-anal sex
    - Oral-genital sex after genital-anal sex
    - Fomites (e.g. sex toys)

Amoebiasis prevalence

Can Med Assoc J. 1980 Sep 20;123(6):512-4.

Intestinal parasitic infections in homosexual men: prevalence, symptoms and factors in transmission.

Keystone JS, Keystone DL, Proctor EM.

- 200 homosexual and 100 heterosexual male volunteers completed questionnaire and submitted a stool specimen in SAF fixative for OCP assessment in Toronto, Canada, May-August 1978

Table I—Prevalence of intestinal parasitic infection in homosexual and heterosexual men as determined by stool examination

Parasite	No. (and %) of men infected	
	Homosexual (n = 200)	Heterosexual (n = 100)
Entamoeba histolytica or *Giardia lamblia* or both*	73 (36.5)	4 (4)
Nonpathogenic protozoa†	61 (30.5)	12 (12)
Ascaris lumbricoides	1 (0.5)	–
Total	135 (67.5)‡	16 (16)

*Of the homosexual and heterosexual men 54 (27%) and 1 (1%) respectively were infected with *E. histolytica* and 26 (13%) and 3 (3%) were infected with *G. lamblia*.
†In order of decreasing frequency, *Endolimax nana*, *Entamoeba hartmanni*, *Entamoeba coli*, *Iodamoeba buetschlii* and *Dientamoeba fragilis*.
‡Difference significant at $P < 0.001$ by chi-square analysis.

Table III—Relation of various factors to parasitic infection in the two groups

Sexual orientation and factor*	No. (and %) of men		
	Infected	Uninfected	Total
Heterosexual			
Foreign travel			
History	3 (12)	22 (88)	25 (100)
No history	13 (17)	62 (83)	75 (100)
Homosexual			
Foreign travel			
History	46 (70)	20 (30)	66 (100)
No history	89 (66)	45 (34)	134 (100)
Type of household			
Homosexual	68 (67)	33 (33)	101 (100)
Heterosexual	67 (68)	32 (32)	99 (100)
No. of sexual partners in previous 6 months			
0–1	11 (50)	11 (50)	22 (100)
> 10	44 (71)	18 (29)	62 (100)
Cleansing before anal sex			
Done	65 (61)	41 (39)	106 (100)
Not done	70 (74)	24 (26)	94 (100)

*The only factor significantly correlated ($P = 0.05$) with infection was a lack of cleansing before anal sex.

Amoebiasis prevalence in Sydney, Australia

J Clin Microbiol. 2007 Mar;45(3):1035-7. Epub 2007 Jan 17.

PCR detection of Entamoeba histolytica, Entamoeba dispar, and Entamoeba moshkovskii in stool samples from Sydney, Australia.

Fotedar R[1], Stark D, Beebe N, Marriott D, Ellis J, Harkness J.

- 5921 stool specimens from 110 patients (3 females, 107 males) with diarrhoea submitted to SVH January 2003-June 2006

TABLE 1.

Clinical details of patients positive for *E. histolytica* by PCR

Patient age (yr) and sex	Microscopy result	TechLab ELISA[a] result	PCR (*E. histolytica*) result	Clinical history	Amebic serology	Overseas travel, risk factor
36, male	E complex, *B. hominis*	Negative	Positive	Amebic dysentery	Equivocal	Thailand
35, male	E complex, *E. hartmanni*, *B. hominis*	Negative	Positive	Gastroenteritis (2 wk)	Not done	None, MSM[d]
31, male	E complex, *E. coli*, *I. butschlii*, *B. hominis*	Negative	Positive[b]	Diarrhea, abdominal pain (1–2 wk)	Not done	None, MSM
53, male	E complex	Negative	Positive[c]	Gastroenteritis (>1 wk)	Not done	None, MSM
57, male	E complex, *I. butschlii*, *E. coli*, *E. hartmanni*	Negative	Positive	Amebic dysentery, extraintestinal disease, liver abscess[e]	Positive	Thailand

Amoebiasis prevalence in Sydney, Australia

Am J Trop Med Hyg. 2007 Mar;76(3):549-52.

Prevalence of enteric protozoa in human immunodeficiency virus (HIV)-positive and HIV-negative men who have sex with men from Sydney, Australia.

Stark D[1], Fotedar R, van Hal S, Beebe N, Marriott D, Ellis JT, Harkness J.

- Stool specimens submitted to SVH for OCP testing from 1,246 MSM (628 HIV-positive, 618 HIV-negative) and 622 non-MSM males attending General Practices March 2003-February 2006

Parasite	No. (%) MSM		No. (%) control
	HIV− (n = 628)	HIV+ (n = 618)	(n = 622)
Potential pathogens			
Entamoeba histolytica/ E. dispar complex†‡	34 (5.4)	20 (3.2)	0
Giardia intestinalis	17 (3)	28 (4.5)	9 (1.5)
Cryptosporidium species§	2 (0.6)	14 (2.2)	2 (3)
Dientamoeba fragilis	5 (0.8)	2 (0.3)	7 (1)
Blastocystis hominis‡¶	135 (21)	111 (18)	69 (11)
Non-pathogenic			
Endolimax nana†	74 (12)	62 (10)	5 (0.8)
Entamoeba coli‡	30 (5)	18 (2.9)	0
Entamoeba hartmanni‡	27 (4)	9 (1.4)	0
Iodamoeba butschlii	24 (4)	8 (0.3)	1 (0.1)
Enteromonas hominis‡	9 (1.4)	10 (1.6)	0
Chilomastix mesnili	6 (0.9)	3 (0.5)	1 (0.1)
Trichomanas hominis	0	2 (0.3)	0
Retortamonas hominis	0	1 (0.2)	0

Amoebiasis sexual transmission in non-MSM patients

Clin Infect Dis. 2009 Aug 1;49(3):346-53. doi: 10.1086/600298.

A possible cluster of sexually transmitted Entamoeba histolytica: genetic analysis of a highly virulent strain.

Salit IE[1], Khairnar K, Gough K, Pillai DR.

- Contact tracing of 7 cases of amoebiasis in 4 bisexual females, 1 homosexual female, and 2 heterosexual males engaging in oral-anal sex and genital-anal sex

Patient	Age, years; sex	Disease	Date of diagnosis	Microscopic analysis of stool	Antigen detection ELISA	Serological titer	Travel history (date)	Sexual contacts	Sexual preference
A	40; F	Liver abscess	Feb 2008	ND	ND	3200	UK, Germany, Italy (Aug–Sep 2007)	C, G, E	Bisexual
B	28; F	Asymptomatic; RLQ abdomen lymphadenopathy	Apr 2008	Entamoeba	ND	ND	UK, Germany, Italy (Aug–Sep 2007)	C, D, G	Bisexual
C	28; M	Liver abscess	May 2008	ND	ND	12,800	UK, Germany, Italy (Aug–Sep 2007)	A, B, D	Heterosexual
D	29; F	Asymptomatic	Jun 2008	Entamoeba	ND	800	None	C, B, G	Bisexual
E	59; M	Liver abscess	Jun 2008	Entamoeba	ND	200	Iraq, Africa (May 2008)	A	Heterosexual
F	32; F	Asymptomatic	Oct 2008	Entamoeba	ND	400	None	G	Homosexual
G	30; F	Asymptomatic	Sep 2008	Entamoeba	Yes	1600	Italy (Dec 2007)	A, B, D, F, H	Bisexual
H	30; M	Asymptomatic	Sep 2008	Negative[a]	ND	ND	None	G	Heterosexual

Amoebiasis sexual transmission in non-MSM patients

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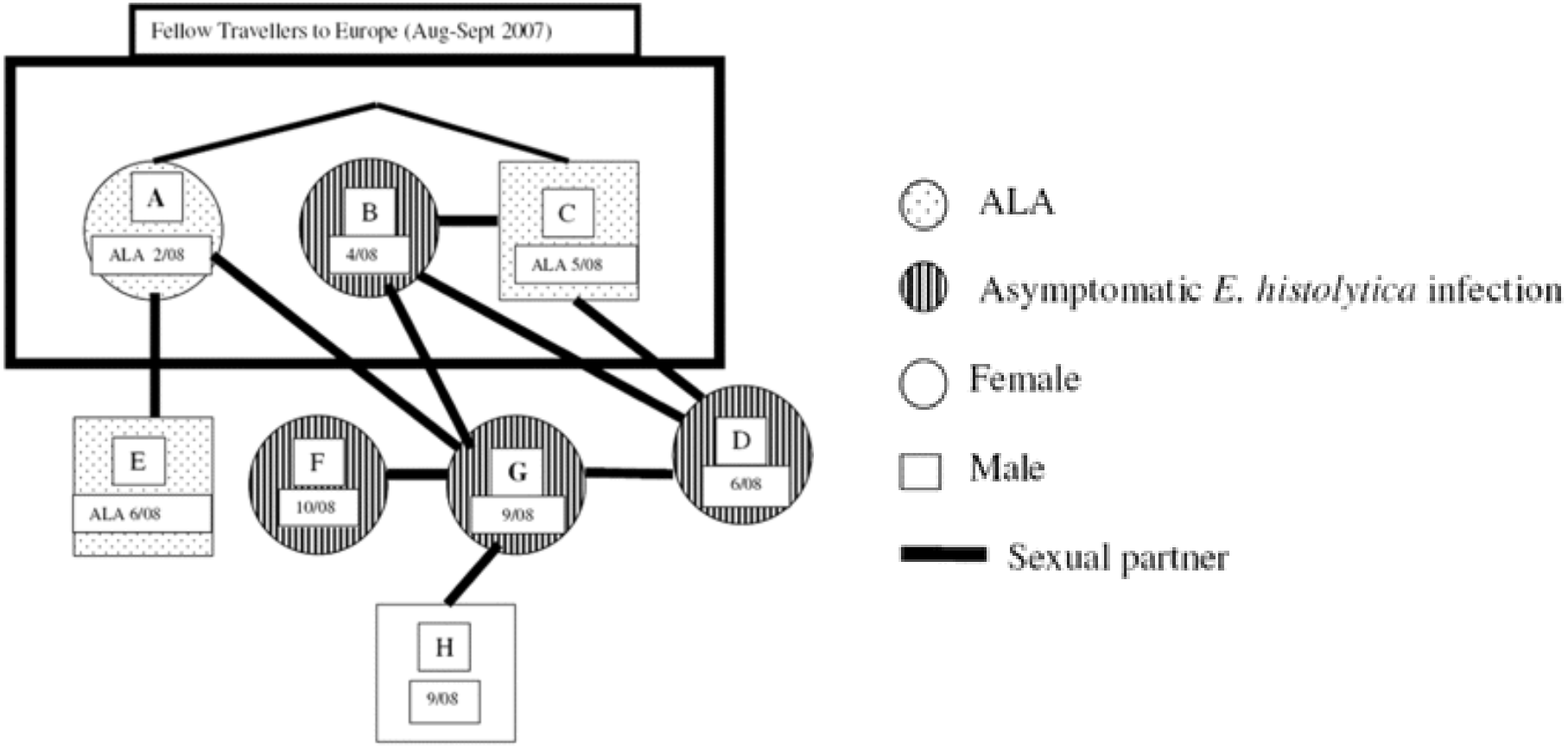

Amoebiasis clinical features

- Asymptomatic carriage (~90%)
  - 5-10% risk of progression to disease at 12 months
- Intestinal disease (~10%)
  - Diarrhoea (94-100%), haematochezia (94-100%), abdominal pain (12-80%), weight loss (~50%), and fever (~40%)
  - Amoeboma, fistulae, necrotic colitis, and toxic megacolon (rare)
- Extra-intestinal disease (~1%)
  - Liver abscess (most common, haematogenous spread)
  - Empyema and/or lung abscess (liver abscess rupture > haematogenous spread)
  - Pericarditis (liver abscess rupture > haematogenous spread)
  - Brain abscess (haematogenous spread)
  - Perianal disease (direct inoculation)

Amoebic kidney abscess

- Literature review
  - Embase, Google, MedLine, and PubMed

Search History (7)

# ▲	Searches	Results
1	amoeba.mp. or exp Amoeba/	2394
2	Entamoeba histolytica/ or exp Entamoebiasis/ or amoebic.mp. or exp Amebiasis/	5900
3	exp Kidney/ or renal abscess.mp. or exp Pyelonephritis/	142422
4	kidney abscess.mp.	23
5	3 or 4	142437
6	1 or 2	7743
7	5 and 6	32

Search History (7)

# ▲	Searches	Results
1	amoeba.mp. or exp "amoeba (life cycle stage)"/	3609
2	exp amebiasis/ or amoebic.mp. or exp Entamoeba histolytica/	7770
3	renal abscess.mp. or exp kidney abscess/	977
4	pyelonephritis.mp. or exp pyelonephritis/	12203
5	1 or 2	10638
6	3 or 4	12872
7	5 and 6	15

Clin Res Hepatol Gastroenterol. 2014 Oct;38(5):541-2. doi: 10.1016/j.clinre.2014.04.007. Epub 2014 Jun 19.

Amoebic hepatic and renal abscesses complicating amoebic colitis.

Mourra N[1], Colignon N[2], Broudin C[1], Arrivé L[3].

- 55 M migrant from Mali in France
- No comorbidities
- Anaemia, melaena, and weight loss for ~3 months
- CT demonstrated right colon mass
- Right hemicolectomy for presumed colorectal cancer
- Septic shock unresponsive to antibiotic therapy for 6 days post-surgery
- CT demonstrated liver and right kidney abscesses
- Liver abscess drainage and right nephrectomy
- *E. histolytica* trophozoites identified in colon, kidney, and liver abscesses
- *E. histolytica* serology positive
- Metronidazole for 30 days curative

Trop Biomed. 2015 Sep;32(3):551-3.

First report of genitourinary amoebiasis in Thailand.

Saensiriphan S[1], Rungmuenporn L[2], Phiromnak P[2], Yingyeun S[2], Klayjunteuk S[3], Pengsakul T[1].

- 63 F in Thailand
- No comorbidities
- Back pain, diarrhoea, dysuria, and fevers
- *E. histolytica* trophozoites identified in faeces and urine
- No imaging or serology described
- Metronidazole for 7 days curative

Amoebic kidney abscess

Patient age and gender	Comorbidities	Clinical features	Imaging modalities	Microbiology investigations	Curative treatment	Source
78 F	None	Kidney abscess (left)	CT, US	Aspirate MCS: *E. histolytica* trophozoites *E. histolytica* serology: Positive Faeces MCS: Negative Urine MCS: Negative	Metronidazole 21 days	Sharma *et al.* Amoebic renal cyst: a case report. *Braz J Infect Dis*. 2005. 9(3): 266-268.
42 F	Diabetes mellitus	Emphysematous pyelonephritis and kidney abscesses (left)	CT, US	*E. histolytica* serology: Negative Operative specimen MCS: *E. histolytica* trophozoites, *Proteus* spp.	Nephrectomy	Guvel *et al.* Emphysematous pyelonephritis and renal amoebiasis in a patient with diabetes mellitus. *Int J Urol*. 2003. 10(7):404-406.
30 M	None	Lung abscess (right lower lobe) and kidney abscess (right)	Angiography, US	Aspirate MCS: Negative *E. histolytica* serology: Positive	Metronidazole 28 days	Andrew W. and Thomas R. Renal amoebic abscess detected on grey-scale ultrasonography. A case report. *S Afr Med J*. 1981. 59(16):571-574.

S Afr Med J. 1981 Apr 11;59(16):571-4.

Renal amoebic abscess detected on grey-scale ultrasonography. A case report.

Andrew WK, Thomas RG.

TABLE I. DETAILS OF PREVIOUSLY REPORTED CASES OF RENAL AMOEBIC ABSCESS

Author	Date	Site and No. of abscesses	No. of cases	Probable route of infection	Hepatic abscess	Result	Quoted by
Kulz	1913	Renal (multiple)	2	?	?	?	Kirsh and Diaz-Riviera[1]
Hartmann and Keppel	1923	Renal	1	Operative drainage of liver abscess	Yes	?	As above
Vichrew	1924	Renal (miliary cortical)	1	?	?	?	As above
Casco	1932	Renal	1	?	?	Amoebic pus in urine	As above
Kirsh and Diaz-Riviera[1]	1943	Perinephric	1	Lymphatic	Liver enlarged. No abscess	Surgically drained and treated with emetine	
Ross[2]	1944	Perinephric	1	?	?	Treated with emetine	
Andrew and Glyn Thomas (present case)	1979	Renal lower pole — single	1 1	Amoebic lung abscess	Nil	Aspirated and treated with metronidazole	

Case Presentation of Mr. AF

- Why present this case?
  - Rare complication of an uncommon infection
  - Sexual history evolution
    - No contact with sex workers

      → My partner is a sex worker from South East Asia

References

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