Vancomycin induced eosinophilic peritonitis

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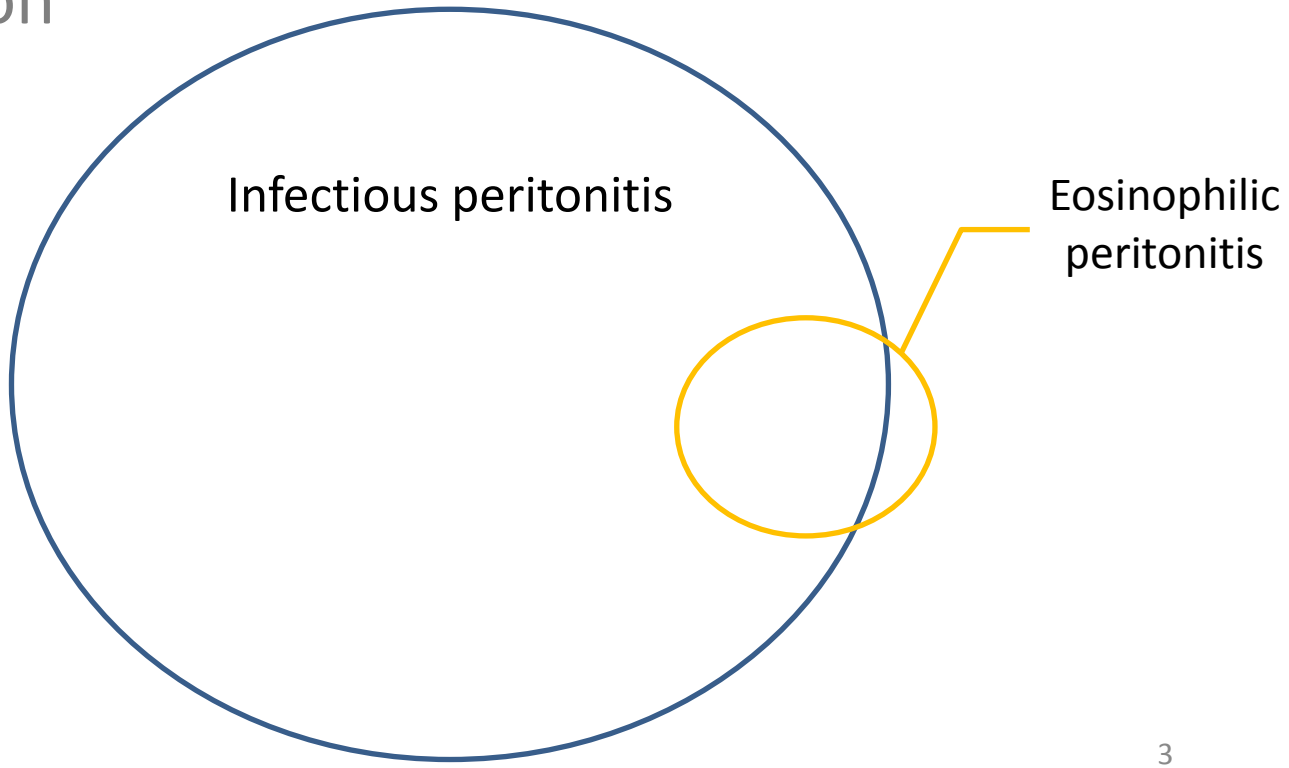
Eosinophilic peritonitis Introduction

- Defined as dialysate studies:
  - >100 WBCs/µL and eosinophils constitute >10%
- Infectious and non-infectious

Outline

- Eosinophilic peritonitis
  - Infection
  - Non-infection

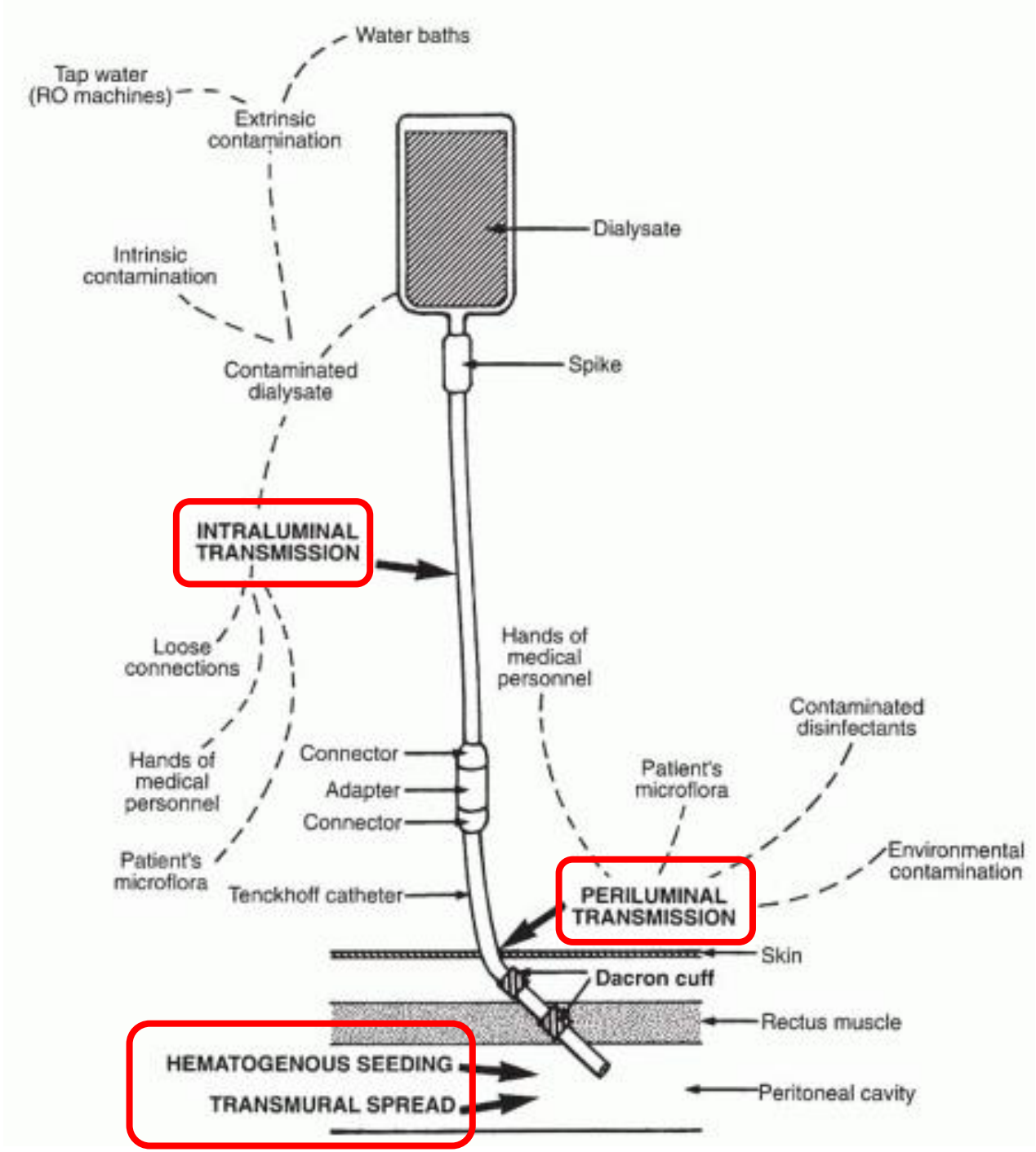


Infectious eosinophilic peritonitis

- Clinical presentation
  - Abdominal pain
  - Fever
  - Turbid dialysate
  - Nausea and vomiting
  - Hypotension
- Lab
  - Dialysate: Usually eosinophils < 40%
  - Peripheral: Without eosinophilia

Infectious eosinophilic peritonitis

- Etiology
  - Intraluminal route (tough contamination)
  - Periluminal route (extension from exit site or tunnel infection)
  - Trans-visceral migration from bowels
  - Hematogenous dissemination
- Pathogen
  - Bacteria, tuberculosis, fungus, parasite, virus


Water baths
Tap water
(RO machines)
Extrinsic
contamination
Dialysate
Intrinsic
contamination
Spike
Contaminated
dialysate
INTRALUMINAL
TRANSMISSION
Loose
connections
Hands of
medical
personnel
Contaminated
disinfectants
Hands of
medical
personnel
Connector
Adapter
Connector
Patient's
microflora
Patient's
microflora
Environmental
contamination
Tenckhoff catheter
PERILUMINAL
TRANSMISSION
Skin
Dacron cuff
Rectus muscle
HEMATOGENOUS SEEDING
TRANSMURAL SPREAD
Peritoneal cavity

Infectious eosinophilic peritonitis

- Treatment
  - Empiric antibiotics (vancomycin, 3rd or 4th cephalosporin)
  - Catheter removal

TABLE 8
Indications for Catheter Removal

- Refractory peritonitis
- Relapsing peritonitis
- Refractory exit-site and tunnel infection
- Fungal peritonitis
- Catheter removal may also be considered for
  - repeat peritonitis
  - mycobacterial peritonitis
  - multiple enteric organisms

ISPD GUIDELINES/RECOMMENDATIONS 2016

Infectious eosinophilic peritonitis

- Prognosis
  - Catheter loss
  - Transient loss of ultrafiltration
  - Permanent membrane damage
  - Mortality

Outline

- Eosinophilic peritonitis
  - Infection
  - Non-infection

Non-infectious eosinophilic peritonitis

- Etiology
  - Hypersensitivity to PD catheter, PD solution (such as icodextrin)
  - Air introduced into the peritoneal cavity

    (usually in first 3 month of PD)
  - Allergic reaction to antibiotics (vancomycin, cefazolin, piperacillin)

Non-infectious eosinophilic peritonitis

- Clinical sign and symptom
  - Mild abdominal pain
  - Mild Fever
  - Turbid dialysate
- Lab
  - Dialysate: Usually eosinophils > 40%.
  - Peripheral: Usually with eosinophilia.

Non-infectious eosinophilic peritonitis

- Treatment
  - Found and remove possible sources of allergy
  - Antihistamine or steroid
- Prognosis
  - Self-limiting with spontaneous resolving after several days to weeks

Eosinophilic ascites

Available online at www.sciencedirect.com
ScienceDirect
Digestive and Liver Disease
Digestive and Liver Disease 40 (2008) 834
www.elsevier.com/locate/dld

Image of the Month

Eosinophilic ascites

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- 37 M
- Hx: adult-onset asthma
- CC: GI symptom for 10 days
- PE: obvious shifting dullness
- Lab: Peripheral Eosinophilia 53% (WBC:24560)

  Ascites Eosinophils 98%(WBC:6680)

Diagnosis:
Hypereosinophilic syndrome (HES)

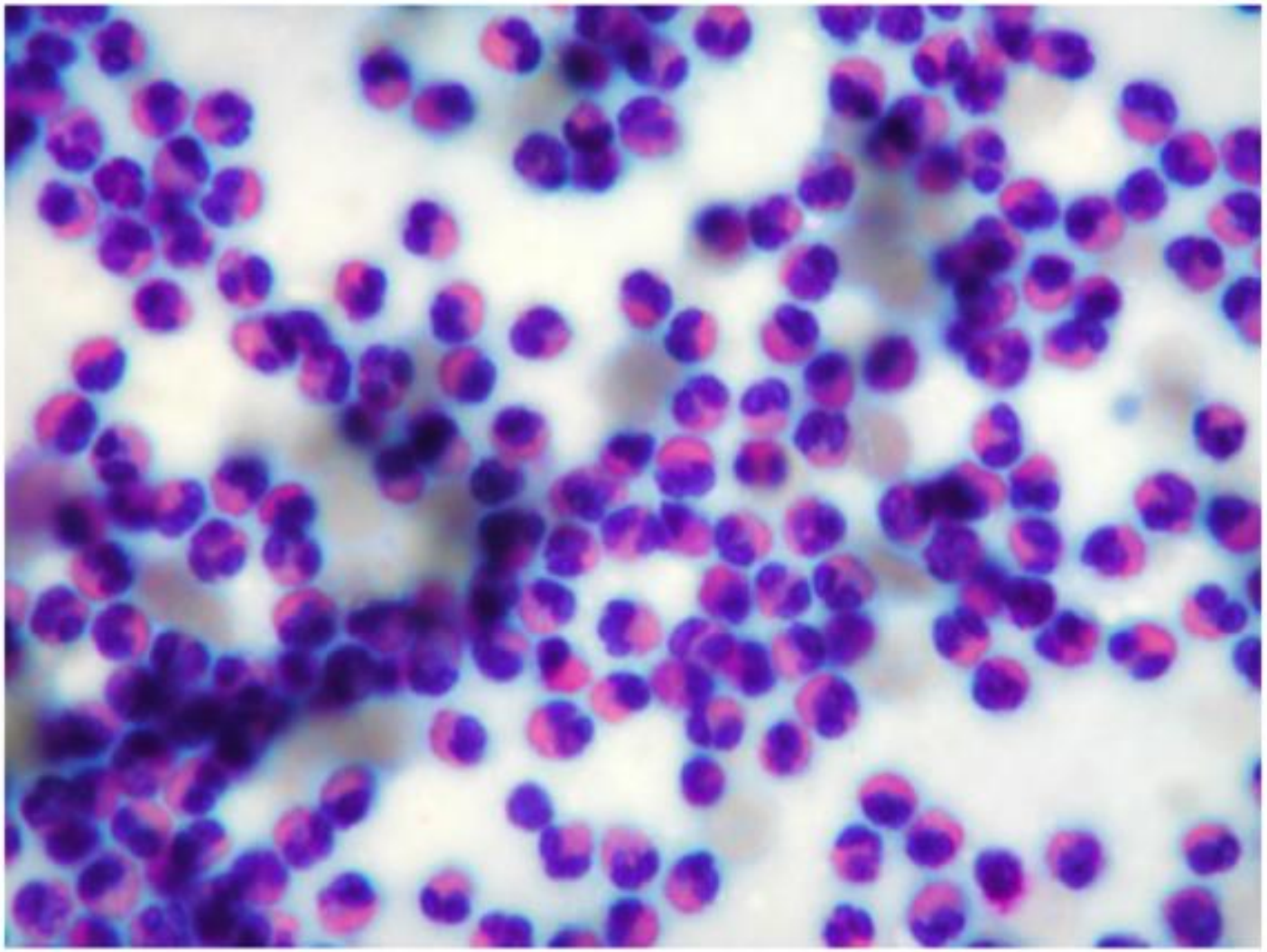
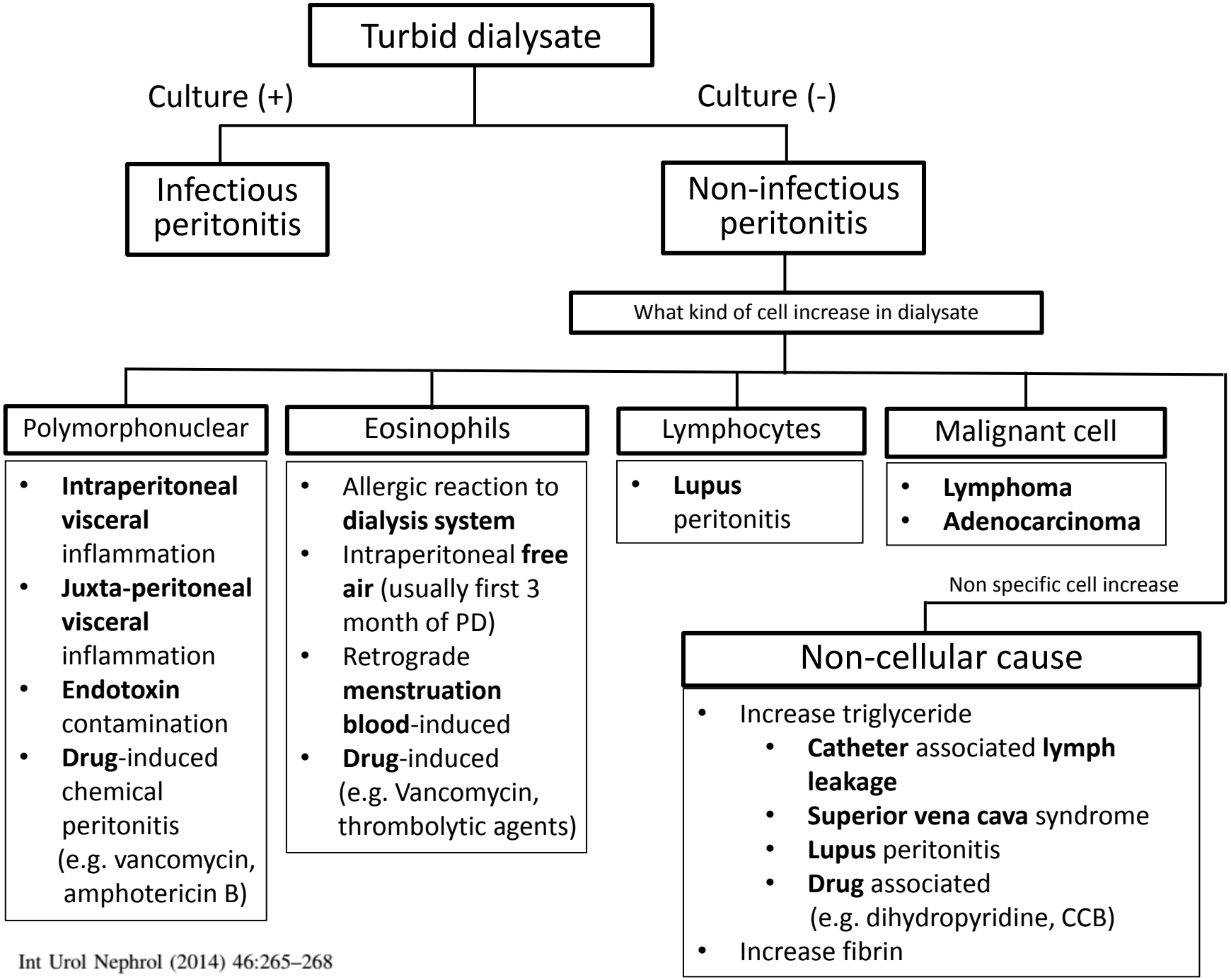


Fig. 1. Cytology of ascites from paracentesis showing numerous eosinophils (Wright Giemsa stain, ×1000).



Int Urol Nephrol (2014) 46:265–268
DOI 10.1007/s11255-012-0312-z

Conclusion

- Differential diagnosis of turbid dialysate including infection and non-infection.
- Vancomycin may induced eosinophilic peritonitis with turbid dialysate

Thanks for your attention

林校長
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Table 1. Comparison between infectious and antibiotics (vancomycin)-induced EP

	Infectious EP	**Antibiotics (vancomycin)-induced EP**
Prevalence	3-5% in infectious peritonitis [12]	Rare, <1% in intraperitoneal vancomycin therapy [12]
Clinical presentations	Turbid dialysate	Turbid dialysate
	Severe abdominal pain	Mild abdominal pain
	Usually fever	Mild fever
Eosinophil percentage in dialysate	Usually < 40% eosinophils [12]	Usually > 40% eosinophils [12]
Blood eosinophilia	Rare	Often
Dialysate cultures	Usually positive	Negative
Possible mechanisms	Microbial infection with antigens mediated	Allergic reaction to antibiotics with cytokines releasing
	(bacteria, tuberculosis, fungus, virus, parasite)	(vancomycin, cefazolin, piperacillin)
Management	Antimicrobial agents	Antibiotics discontinuation
	PD catheter removal if necessary	Steroid and/or antihistamine for severe cases

Incidence and significance of peritoneal eosinophilia during peritoneal dialysis-related peritonitis. Perit Dial Int. 2003;23(5):460-4.

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備忘錄

TABLE 7
Terminology for Peritonitis

- Recurrent: An episode that occurs within 4 weeks of completion of therapy of a prior episode but with a different organism
- Relapsing: An episode that occurs within 4 weeks of completion of therapy of a prior episode with the same organism or one sterile episode
- Repeat: An episode that occurs more than 4 weeks after completion of therapy of a prior episode with the same organism
- Refractory: Failure of the effluent to clear after 5 days of appropriate antibiotics
- Catheter-related peritonitis: Peritonitis in conjunction with an exit-site or tunnel infection with the same organism or one site sterile

N.B. Relapsing episodes should not be counted as another episode during the calculation of peritonitis rates; recurrent and repeat episodes should be counted.