



The Corner

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18. Resident-attending in the ED: Acute pyelonephritis

Resident: Hi Dr. Lane, there's a child I'd like to discuss with you.

Attendant: Sure, tell me about it.

Resident: Charlotte is a healthy 16-month old girl, who has been brought into the ED for fever up to 39.5°C and vomiting since yesterday. She has loss of appetite and irritability. She hasn't had diarrhea or any other symptoms. There is no source for the fever in the physical examination, so I took a urine sample with a urine collection bag and the dipstick shows leukocytes and nitrites.

Attendant: OK, so what do you suggest we do now? Do you think the bag urine sample is valid?

Resident: I think we have to confirm the results with a sterile sample, so I suggest obtaining a catheterized urine sample.

Attendant: Very well, let me know when you have the results.

Resident: The microscopic examination with a Gram-stained smear of the catheterized urine sample shows pyuria and bacteriuria with gram-negative bacilli. Therefore, she probably has a pyelonephritis. I have already sent the sample for culture and my plan is to run a blood test.

Attendant: OK. I see you have the case under control. Come back to me with the new results.

Resident: She has increased acute phase reactants and a normal kidney function. After lowering the temperature, she has a good general appearance, she is calm and she has been breastfeeding with a proper oral tolerance.

Attendant: So what is your plan?

Resident: She has no indication for hospitalisation. I would give her a first dose of IV gentamycin and I would send her home with oral antibiotics. Given that the most frequent pathogen is *E. coli*, which has increasing rates of resistance to first-generation cephalosporins and amoxicillin-clavulanate, the choice of antibiotics would be a third-generation cephalosporin, such as cefixime.

Attendant: I agree with you. Remember that it is important to follow up this patient because it can be associated to vesicoureteral reflux and there is a risk of renal scarring. As it is her first episode of febrile UTI, a renal ultrasound should be performed to rule out abnormalities of the genitourinary tract. You could also consider a renal scintigraphy and a voiding cystourethrogram depending on the results.

Resident: Alright, I will make her an outpatient appointment for the ultrasound. Thank you for your help.

KEY WORDS:

Acute pyelonephritis: pielonefritis aguda.

Urine collection bag: bolsa de orina.

Dipstick: tira de orina.

Bag urine sample: muestra de orina por bolsa.

Catheterized urine sample: muestra de orina por sondaje vesical.

Gram-stained smear: tinción de Gram.

Gram-negative bacilli: bacilos gram negativos.

Increased acute phase reactants: elevación de reactantes de fase aguda.

Rates of resistance: tasas de resistencia (a antibióticos).

Third-generation cephalosporin: cefalosporina de tercera generación.

Vesicoureteral reflux: reflujo vesicoureteral.

Renal scarring: cicatrices renales.

UTI (Urinary Tract Infection): ITU (Infección del Tracto Urinario).

Genitourinary tract: tracto genitourinario.

Renal scintigraphy: gammagrafía renal.

Voiding cystourethrogram: cistouretrografía miccional seriada.



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