We report on the case of Salmonella arteritis with aneurysm formation of the left common iliac. Extrinsic compression of the left ureter resulted in ureteral obstruction and Salmonella bacteremia secondary to pyelonephritis. An excision was performed, followed by an extra-anatomic bypass with an autologous superficial femoral vein. Salmonella septicemia after acute pyelonephritis in a patient aged over 50 years should raise the suspicion index regarding the possibility of microbial arteritis with aneurysm formation, which is a vascular emergency.

Since William Osler described mycotic aneurysms in 1885, the classification of these pathologies has been refined. Microbial arteritis with aneurysm formation is the most common type of mycotic iliac aneurysms encountered, accounting for up to 66% of cases. Since the era of antibiotic drugs, the infectious agents responsible are Staphylococcus aureus and Salmonella species in 25% and 15%, respectively. Salmonella microbial arteritis with aneurysm formation in the iliac position is rarely seen. We report on the case of a patient with Salmonella microbial arteritis with aneurysm formation of the common iliac artery resulting in secondary ureteral obstruction. This pathology occurred after Salmonella pyelonephritis, which is a rare clinical presentation.

Case report

A 68-year-old man, known for rheumatoid arthritis under corticosteroid therapy, presented with pain in the left hip. A bone scan showed stasis in the left ureter. Endovenous pyelography confirmed left ureteral dilation secondary to ureteral obstruction at L5–S1. A urine culture confirmed Salmonella urinary tract infection.

After 30 days, he exhibited hyperthermia, pain in the left side and gross hematuria. Ureteroscopy with retrograde pyelography showed obstruction of the left ureter at L5–S1 and the presence of pus. He then developed Salmonella-induced septic shock treated with intravenous antibiotherapy.

An abdominal CT scan revealed extrinsic compression of the left ureter at the sacral level by an aneurysm of the left common iliac artery (Fig. 1). Arteriography of the lower limbs confirmed the saccular aneurysm formation starting 1.5 cm from the aortic bifurcation and ending at the left iliac bifurcation (Fig. 2).

Percutaneous nephrostomy was performed before proceeding with left ureterolysis. We performed resection...
of the microbial arteritis with aneurysm formation and a right-to-left femoro-
femoral autologous bypass with reversed rightfemoral vein. After 3 years of follow-
up, the patient remains asymptomatic with normal abdominal ultrasound testing.

Discussion

Since the types of infected aneurysm were first described, there has been a
change in the breakdown of prevalence for each type. Moreover, the aging of
the population means an increase in the prevalence of atheromatous diseases,
which increases the population of people who are likely to develop microbial ar-
teritis with aneurysm formation. This pathology usually occurs after septicemia,
which seeds atheromatous plaque and produces local infection of the artery
wall, leading to an aneurysm. Salmonella bacteremia in people aged 50 years and
over can lead to infection of the vascular endothelium in 25% of cases. This infec-
tion may reach as high as 35% in people aged over 65 years. This disease also car-
rries a high mortality rate of 33% to 75%. For these reasons, we believe that our pa-
tient developed Salmonella arteritis with aneurysm formation after bacteremia that
was documented earlier in its development, despite the negative culture from the aneurysm. The culture is negative in 25% of cases, anyway.

Microbial arteritis is located in the il-
iac artery in 2% to 18% of cases. The clinical presentation of iliac aneurysm is
different to that of the aortic location. Most often, patients are asymptomatic;
however, when there are symptoms, they include abdominal pain, genitourinary
symptoms and pain in the back or hip. Urinary tract obstruction may be part of
the mode of presentation.

Among the extraintestinal manifesta-
tions of salmonellosis, infection of the
urinary tract is infrequent. Pyelonephritis
and cystitis arise in 1%–2% and 2%–3% of
cases, respectively. Moreover, it occurs when there is a predisposition, such as an
occult urological problem or immuno-
suppression. Our patient was therefore predisposed to this rare complication of
salmonellosis because he was under corti-
costeroid therapy and had left ureteral
obstruction.

The literature is relatively consistent
regarding the fundamental principle for
treating infected aneurysms: the
aneurysm must be excised, extensive local
debridement performed, appropriate an-
tibiotherapy administered and revascular-
ization performed when indicated. How-
ever, selecting the type of reconstruction
and vessel to use remains controversial. Recently, Muller and colleagues proposed in situ reconstruction when there is low-grade infection (absence of pus) and extra-anatomic reconstruction when there is high-grade infection. Extra-
anatomic reconstruction was performed on our patient, given the proximity of the aneurysm to the aortic bifurcation (roughly 0.5 cm per operatory) and signif-
ificant adjacent inflammation, making tissue quality mediocre for anastomosis.
Regarding the vessel to use for recon-
struction, no definite recommendation
has been published, and we used an au-
tologous vessel with the aim of prevent-
ing graft infection.

In conclusion, care must be taken
when a patient exhibits the following
combined elements: Salmonella urinary
tract infection, ureteral obstruction, Sal-
monella sepsis and age over 50 years. Mi-
crobial arteritis with aneurysm formation
must then be ruled out because it is a
vascular emergency.

Competing interests: None declared.

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FIG. 2. Angiograph of lower limbs: anteroposterior view.