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Acute necrotizing chorioamnionitis caused by *Actinomyces neuii*

Corioamnionitis aguda necrotizante causada por Actinomyces neuii

We present the case of a 41-year-old female patient who was admitted to the hospital at week 25 of her pregnancy for uterine dynamics and foetal lung maturity control. After five days of hospitalization, she began treatment with atosiban (oxytocin antagonist) due to increased uterine dynamics. Previous significant medical history presented in vitro fertilisation and gestational diabetes with insulin treatment. A cerclage was placed 22.3 weeks into the pregnancy due to prolonged cervical length.

During the hospitalization (week 27.5), the patient began experiencing an increased clear vaginal discharge without uterine dynamics resulting in a premature rupture of membranes. Laboratory blood test revealed an increase in C-reactive protein of 5.47 mg/dL (0–0.5 mg/dL). Based on the findings, a presumptive diagnosis of chorioamnionitis was made leading to amniocentesis for study of amniotic fluid.

The results of the amniotic fluid study were as follows: glucose < 2 mg/dL, proteins 4 g/L and a count of 1720 nucleated cells/mm^3 with a predominance of polimorfonuclear cells. The Gram stain showed unbranched Gram-positive bacilli (Fig. 1).

Based on the laboratory data, the patient was diagnosed with chorioamnionitis starting with antibiotic dosage (intravenous piperacillin-tazobactam and oral clarithromycin). The obstetrician decided to induce labour and stopped the atosiban bolus. A baby weighing 1200 g was born by spontaneous delivery at week 28.

The anatomical pathology study of the placenta showed acute necrotizing chorioamnionitis but the patient did not exhibit signs of fever or sepsis after delivery, and the antibiotic treatment was concluded 24 h postpartum. Due to the premature birth, the new-born was admitted to paediatric intensive care and was treated with ampicillin and gentamicin. Antibiotic treatment concluded after 5 days without further signs of bacterial infection.

Microbiological studies used amniotic fluid and two placenta samples. All the samples were cultured in selective (MacConkey and Columbia CNA agar) and enrichment media (chocolate agar, blood agar, and thioglicolate broth) in aerobic conditions. We also used Anaerobe Schaedler and Schaedler neomycin vancomycin agar under anaerobic conditions (bioMérieux®). Two types of colonies were isolated in the amniotic fluid culture. Some colonies had a circular and smooth white colour and were identified as *Actinomyces neuii* by mass spectrometry (log score: +2.06, MALDI-TOF MS, Microflex®, Bruker). The other colonies were smaller and darker and were identified as *Streptococcus anginosus* by MALDI-TOF MS (log score: +2.16) as well. In both placenta samples, only *Actinomyces neuii* was isolated and identified (both log score: +2.16) (Fig. 1).

Susceptibility testing used the minimum inhibitory concentration (MIC) microdilution method (Pos MICroSTREP plus 6 panel, MicroScan WalkAway, Beckman Coulter). The sensitivity analysis showed that both strains were susceptible to all antibiotics tested: ampicillin *A. neuii* (≤0.06 mg/L)/*S. anginosus* (0.12 mg/L), cefotaxime (≤0.25 mg/L), meropenem (≤0.25 mg/L), levofloxacin *A. neuii* (1 mg/L)/*S. anginosus* (≤0.5 mg/L), clindamycin (≤0.06 mg/L), clarithromycin (≤0.12 mg/L), vancomycin (0.5 mg/L), and daptomycin (≤0.25 mg/L).

Streptococcus anginosus was not seen in the Gram stain, and it grew at low CFU counts in the inoculated amniotic fluid samples. The placenta samples did not reveal its presence; thus, it was considered to be a contaminant of the sample extraction.

Actinomyces neuii is a facultative anaerobic Gram-positive and rod-shaped bacteria. It has an unbranched morphology in contrast to other species of *Actinomyces*.[1–3] *Actinomyces* species are considered normal flora of the oral cavity, gastrointestinal tract, and female genital tract; they rarely cause disease in humans.[3–8] Nevertheless, they can cause chronic and slowly progressive infec-

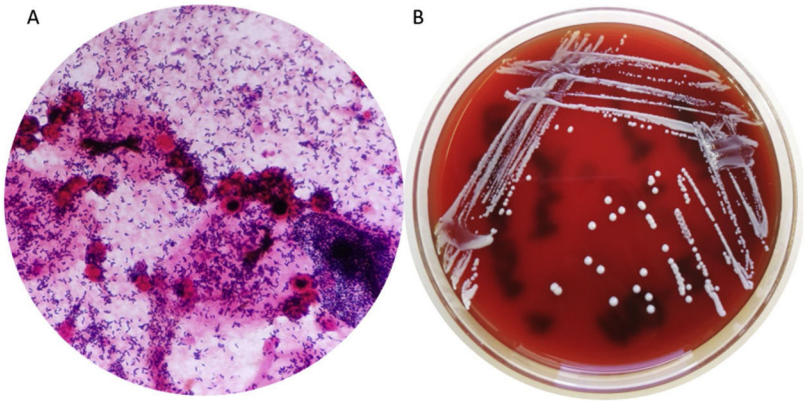

Fig. 1. Direct Gram stain from the amniotic fluid revealed unbranched gram-positive bacilli (A). White colonies of *Actinomyces neuii* isolated on blood agar after 48 h of incubation (B).

tions including abscess formation in skin and soft tissues.[4,6,9] *Actinomyces neuii* is a lesser-known species first described in 1994 by Funke et al.[2] It does not cause typical actinomicosis. The infections are related to abscesses, skin lesions, and infections of the genitourinary tract and mostly associated with the use of intrauterine contraceptive devices (IUD).[1,4,7–10] Rare cases of pericarditis, osteomyelitis, breast infections, ophthalmic infections, prostatitis, and bacteraemia have also been previously reported.[1,3,5–8]

Actinomyces neuii has also been involved in causing premature labour, chorioamnionitis, and neonatal sepsis associated with a previous resolution of a vaginal device (IUD or vaginal cerclage).[1,4–10]

In our patient, chorioamnionitis was suspected to be related to the cerclage placement at week 22 of pregnancy. Other authors reported similar conclusions of *Actinomyces neuii* infections associated with the use of this device.[1,8] Only two cases reported the presence of *Actinomyces neuii* in amniotic fluid.[5,10]

This case demonstrates the need to consider *Actinomyces* infection in patients who carried a vaginal device. Amniotic fluid should be examined in patients with suspected chorioamnionitis for an early diagnosis to avoid further complications to the mother and the new-born.

Conflict of interest

The authors declare no conflict of interests.

References

1. Giron de Velasco-Sada P, Peinado H, Romero-Gómez MP. Neonatal sepsis secondary to chorioamnionitis by *Actinomyces neuii* in a 25 weeks pregnant woman. Med Clin (Barc). 2018;150:407–8, http://dx.doi.org/10.1016/j.medcli.2017.10.007. English, Spanish. Epub 2017 Nov 14: PMID: 29150122.
2. Funke G, Stubbs S, von Graevenitz A, Collins MD. Assignment of human-derived CDC group 1 coryneform bacteria and CDC group 1-like coryneform bacteria to the genus *Actinomyces* as *Actinomyces neuii* subsp. neuii sp. nov., subsp. nov., and *Actinomyces neuii* subsp. anitratus subsp. nov. Int J Syst Bacteriol. 1994;44:167–71, http://dx.doi.org/10.1099/00207713-44-1-167. PMID: 8123558.
3. Gómez-Garcés JL, Burillo A, Gil Y, Sáez-Nieto JA. Soft tissue infections caused by *Actinomyces neuii*, a rare pathogen. J Clin Microbiol. 2010;48:1508–9, http://dx.doi.org/10.1128/JCM.02139-09. Epub 2010 Feb 24: PMID: 20181910; PMCID: PMC2849542.
4. Alsohime F, Assiri RA, Al-Shahrani F, Bakeet H, Elhazmi M, Somily AM. Premature labor and neonatal sepsis caused by *Actinomyces neuii*. J Infect Public Health. 2019;12:282–4, http://dx.doi.org/10.1016/j.jiph.2018.04.001. Epub 2018 Apr 26: PMID: 29706318.
5. Gajdács M, Urbán E. The pathogenic role of *Actinomyces* spp. and related organisms in genitourinary infections: discoveries in the new modern diagnostic era. Antibiotics (Basel). 2020;9:524, http://dx.doi.org/10.3390/antibiotics9080524. PMID: 32824418; PMCID: PMC7459602.
6. Von Graevenitz A. *Actinomyces neuii*: review of an unusual infectious agent. Infection. 2011;39:97–100, http://dx.doi.org/10.1007/s15010-011-0088-6. Epub 2011 Feb 22: PMID: 21340579.
7. De Vreese K, Verhaegen J. Identification of coryneform *Actinomyces neuii* by MALDI-TOF MS: 5 case reports and review of literature. Acta Clin Belg. 2013;68:210–4, http://dx.doi.org/10.2143/ACB. 3224. PMID: 24156222.
8. Knee DS, Christ MJ, Gries DM, Thompson MW. Actinomyces species and cerclage placement in neonatal sepsis: a case report. J Perinatol. 2004;24:389–91, http://dx.doi.org/10.1038/sj.jp.7211097. PMID: 15167879.
9. Zelyas N, Gee S, Nilsson B, Bennett T, Rennie R. Infections caused by *Actinomyces neuii: a case series and review of an unusual bacterium*. Can J Infect Dis Med Microbiol. 2016;2016:6017605, http://dx.doi.org/10.1155/2016/6017605. Epub 2016 Feb 29: PMID: 27366175; PMCID: PMC4904567.
10. Mann C, Dertinger S, Hartmann G, Schurz R, Simma B. *Actinomyces neuii* and neonatal sepsis. Infection. 2002;30:178–80, http://dx.doi.org/10.1007/s15010-002-2165-3. PMID: 12120948.

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Subacute thyroiditis after anti-SARS-CoV-2 (Ad5-nCoV) vaccine☆

Tiroiditis subaguda después de la vacuna anti-SARS-CoV-2 (Ad5-nCoV)

Subacute thyroiditis (SAT) is a self-limiting inflammatory disease of the thyroid. It is a rare cause of thyrotoxicosis and is also associated with respiratory virus infections in genetically predisposed people, including influenza virus, adenovirus, coxsackie virus, measles virus and Epstein–Barr virus[1]. During the current SARS-CoV-2 pandemic, thyroid disorders related to infection with this virus have been reported, particularly cases of SAT[1,2]. The new SARS-CoV-2 vaccines in use have also had the adverse effects of triggering SAT and Graves' disease[3–5]. These thyroid disorders seem to be independent of the mechanism of action of the SARS-CoV-2 vaccination (cases have been reported with mRNA-based vaccines, inactivated SARS-CoV-2 vaccines and vector-based vaccines)[3–6]. I present a case diagnosed with SAT after receiving the Cansino Biologics single-dose Ad5-nCoV vaccine.

This was a 53-year-old woman with no previous history or illnesses related to the condition reported here, who was given the Cansino Biologics Ad5-nCoV vaccine. Twenty-four hours later, she developed general malaise, asthenia, myalgia, arthralgia and low-grade fever. Fifteen days after being vaccinated, she developed pain at the base of her neck, which increased in intensity, radiating to her right jaw and ear. The initial assessment revealed tachycardia and distal tremor, no eye symptoms, but diffuse goitre with significant pain on palpation. The ultrasound showed an increase in thyroid volume with bilateral diffuse areas of hypoechogenicity and decreased vascularity. The blood results were as follows: TSH 0.095 mIU/l (ref. 0.5–4.5); free T4 1.22 ng/dl (ref. 0.7–1.48); free T3 352 pg/dl (ref. 158–391); ESR 51 mm/h (ref. <15); CRP 10 mg/l (ref. <1.5); anti-TPO antibodies 1.42 IU/ml (ref. <5.61); anti-Tg antibodies 8.4 IU/ml (ref. <4.11); and anti-TSH receptor antibodies (TRAb) 1.0 IU/l (ref. <1.5). The patient was treated solely with non-steroidal anti-inflammatory drugs (NSAID). When the patient returned after four weeks she was asymptomatic, with no goitre and TSH 31.35 mIU/l and free T4 0.7 ng/dl; she remains in follow-up and is currently untreated.

Ad5-nCoV uses the non-replicating adenovirus-5 (HAd5) as a vector, which carries the gene that codes for the SARS-CoV-2 S protein. The vaccine does not contain adjuvants or preservatives. The possible relationship between TSA and Ad5-nCoV is the involvement of a molecular mimicry of the SARS-CoV-2 S glycoprotein, which shares a genetic similarity with human

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