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CASE REPORT

Transient type I 2nd-degree congenital atrioventricular block: a case report

Bloqueo auriculoventricular congénito transitorio de 2º grado tipo I: reporte de caso

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Mother affected by autoimmune pluripathology and carrier of anti-Ro/SSA antibodies. She continues treatment with azathioprine during pregnancy.

First well-controlled pregnancy with fetal diagnosis of suspected arrhythmia at 30 weeks of gestational age, without hemodynamic repercussion. It is oriented as atrial extrasystole and ultrasound controls are performed every 2 weeks, without objectifying changes. Gestation ends at 40 weeks by cesarean section given the difficulty in monitoring fetal well-being. Female neonate weighing 2720g (-1.6 SD), with normal umbilical artery pH (7.32) is born.

However, she requires admission to the neonatal intensive care unit a few hours after birth due to bradycardia of 80 beats/min in continuous pulse oximetry. Electrocardiogram is monitored, presenting heart rates between 100 and 110 beats/min, a consequence of a first-degree atrioventricular block (PR interval of 160 ms), and periods of second-degree atrioventricular (AV) block, type Mobitz I (Wenckebach) with AV ratio of 4:3 (Fig. 1). No clinical or hemodynamic repercussion was observed.

The following initial complementary tests are performed on the newborn: positive serological study for anti-Ro/SSA; echocardiography-Doppler that rules out structural and functional heart disease; control electrocardiogram at 4 and 6 weeks of life without second-degree AV block, only first-degree persisting; Holter electrocardiogram study at 2 months of age with degree of AV conduction 1:1 in most of the recording; and occasional second Mobitz I AV block. There are no significant sinus node pauses.

From hospital discharge, at 7 days of life, he presents a correct clinical evolution, without cardiovascular symptoms. In the electrocardiographic follow-up, up to 3 years of age, no recurrence of 2nd-degree AV block was detected. However, it maintains 1st-degree AV block with PR intervals of 160-180 ms. The physical and psychomotor development of the patient are completely normal.

Serological control for anti-Ro/SSA at 1 year of age was made, with negative result.

Discussion

The case of a congenital 2nd-degree AV heart block, of immunological cause due to transplacental passage of anti-Ro/SSA antibodies, without hemodynamic repercussion and spontaneous resolution after a few months, is presented.

The most common cause of congenital AV block is immunological, due to direct injury of maternal IgG-type antibodies to cardiac conduction tissue, mainly anti-Ro/SSA and anti-La/SSB. Pregnant women carrying these

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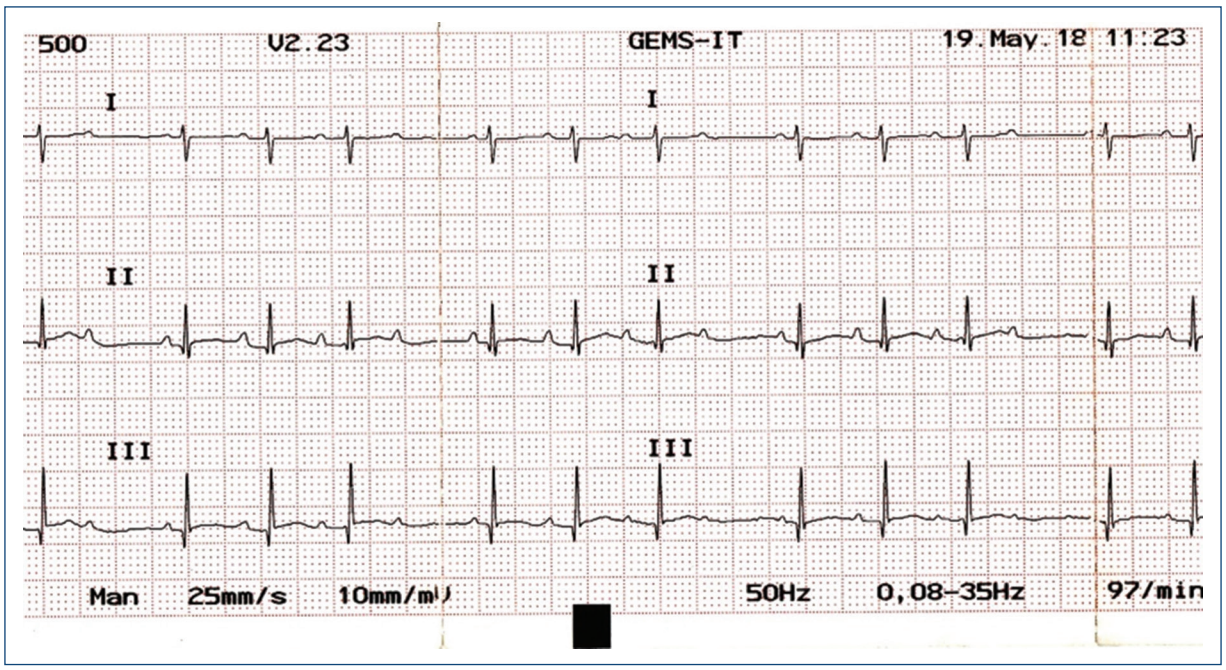

Figure 1. First day of life electrocardiogram. Type I second-degree auriculoventricular block.

autoantibodies require serial echocardiographic control from the 16th week of gestation, to screen for AV block. Treatment with glucocorticoids, mainly dexamethasone and betamethasone, in the early phases can prevent progression to complete AV block and the possible need for pacemaker implantation in the newborn. Perin et al. in a multicenter study with 19 cases of high-grade AV block with a fetal diagnosis, 63% were associated with the presence of anti-Ro/SSA autoantibodies. Corticosteroid treatment was performed in 73% of complete blocks and in the only case of second-degree AV block. Finally, 58% of the patients required pacemaker implantation in the 18-month follow-up[1]. Ciardulli et al. published another meta-analysis on maternal steroid treatment in cases of immune-mediated second-degree AV block, without reaching sufficient evidence to recommend its use[2].

Less common etiologies of congenital AV block are structural heart disease (common atrioventricular canal, corrected transposition of the great vessels, and left isomerism), genetic (long QT syndrome), and fetal myocarditis. Cases without an immunological cause may have a better prognosis. A. Newbury and M. Fahey present three cases of fetuses with type 2:1 AV block without an identifiable cause, which progressed spontaneously to sinus rhythm before birth[3]. Chang et al. describe seven cases of second-degree AV block with a fetal diagnosis, without evident maternal autoantibodies, which spontaneously reverted to sinus rhythm prenatally. The case with persistent AV block evolved to complete block postnatally[4].

On the other hand, gestational treatment with azathioprine drug, as in our case, has not been associated with fetal AV block[5].

The prenatal diagnosis of second-degree AV block represents a diagnostic challenge, and the differential diagnosis should be considered, mainly with non-conducted atrial extrasystole, which has a better prognosis[4].

Anyway, the presence of alterations in the fetal rhythm during cardiotocographic monitoring, as in our case, can frequently determine a cesarean section delivery. On the other hand, the persistence of first-degree AV block in our patient may reflect a chronic residual lesion on the AV node without clinical repercussion. The long-term prognosis is currently uncertain, and it will be advisable to continue monitoring the patient.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

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