CASE REPORT

Complete atrioventricular block in pregnancy: report of seven pregnancies in a patient without pacemaker

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Accepted 17 February 2015

SUMMARY

Obstetric management of a woman with a permanent pacemaker in situ is well reported in the literature; but those who present without pacing are still debatable. The necessity for setting the optimal timing or rate of temporary artificial pacing, specifically for labour, has not been objectively assessed. Temporary pacing in most cases reported in the literature might be to withstand the variations in haemodynamic status during delivery and labour. We report a case of a patient with complete heart block without any pacing who had seven pregnancies without any significant changes in haemodynamic status during labour and delivery. Managing a pregnancy without pacing might be an appropriate alternative for women without any underlying cardiac disorder, as it will not lead to significant changes in the haemodynamic system.

BACKGROUND

Pregnancy in women with complete atrioventricular (AV) block poses a significant challenge to the treating physician. The majority of cases described in the literature were managed with permanent pacemaker in situ or by temporary pacing during labour.^{1–2} There are only a few cases reported in the literature where labour was managed without pacing.^{3–5} We report a case of a 30-year-old woman who had seven pregnancies managed without temporary or permanent pacemaker.

CASE PRESENTATION

A 30-year-old seventh gravida was referred from a primary health centre with complete congenital AV block at 39 weeks of gestation. She was diagnosed to have complete AV block at 19 years of age. She remained asymptomatic and stopped medication by her own volition at the age of 29 years. She had five previous uneventful vaginal deliveries (table 1). On admission, her pulse rate was 50 bpm, regular, and blood pressure was 130/70 mm Hg.

INVESTIGATIONS

The patient's ECG showed complete AV block with narrow QRS complexes (figure 1) and echocardiography showed a structurally normal heart without any left ventricular dysfunction.

TREATMENT

The patient was in latent phase of labour at admission. Labour progressed spontaneously and within

8 h she delivered a male baby weighing 2300 g with APGAR score of 9 at 5 min.

OUTCOME AND FOLLOW-UP

The patient's postpartum period was uneventful. She was asymptomatic and her pulse rate varied between 34 and 50 bpm. On discharge from hospital, she was advised follow-up after 3 months in cardiology clinic for permanent pacemaker insertion.

DISCUSSION

Finding of a high-degree AV block in pregnancy is rare; if present, it is usually related to a congenital complete heart block. In fact, 30% of cases of congenital complete heart block remain undiscovered until adulthood and may, therefore, present during pregnancy.¹ Most cases reported in the literature were managed by temporary pacing in labour with insertion of permanent pacemaker at a later date.^{2–3} Cardiac output depends on the variations in stroke volume and heart rate. In women with complete AV block, an increase in heart rate does not occur as expected and thus the cardiac output solely depends on stroke volume. Concern regarding the changes in haemodynamic status during delivery and labour might have been the main reason for temporary pacing in asymptomatic women.²

No significant changes in haemodynamic status occurred during labour and delivery in two series that reported asymptomatic pregnant women without pacemaker and a structurally normal heart.^{3–4} Thaman *et al*,⁵ in their study, suggested that not all women with complete AV block have haemodynamic instability and thus do not require pacing. They also suggested that course and outcome of pregnancy were more related to and determined by the presence of other underlying cardiac structural disorder.

The necessity for pacing and the proper timing or rate setting of temporary artificial pacing, specifically for labour, has not been objectively assessed. Their insertion has to be weighed against the risk of complications such as irradiation, bleeding, infection or embolism. In our case, the patient had seven pregnancies with three resulting in adverse outcomes (1 abortion and 2 stillbirths) but without any maternal complications. She remained asymptomatic throughout pregnancy and in the interpregnancy period with echocardiography revealing a structurally normal heart. In developing countries, it is not unusual to find such patients presenting for

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To cite: Keepanasseril A, Maurya DK, J YS, *et al*. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-208618

Table 1 Details of the seven pregnancies and the outcome in the present case

Gravidity	Age (years)	Mode of delivery	Sex of baby	Outcome	Complications
1	19	Vaginal delivery at term	Male	Live born	Average weight
2	22	Vaginal delivery at term	Female	Live born	Average weight
3	24	Vaginal delivery at term	Male	Live born	Average weight
4	25	Spontaneous abortion at 3 months	—		Dilation and curettage performed
5	27	Vaginal delivery at 7 months	Male	Still born	1500 g
6	29	Vaginal delivery at 7 months	Male	Still born	1500 g
7 (Index pregnancy)	30	Vaginal delivery at term	Male	Live born	2300 g

Figure 1 ECG of the patient showing complete atrioventricular block with narrow QRS complexes and heart rate of 44 bpm.

the first time in labour. Managing a pregnancy without pacing might be a suitable alternative for women without any underlying cardiac disorder.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

Learning points

- ▶ Asymptomatic pregnant women without pacemaker with a structurally normal heart may not develop significant changes in haemodynamic status during labour and delivery.
- ▶ Pregnancy outcomes in these women are more related to and determined by the presence of other underlying cardiac structural disorder.
- ▶ Managing a pregnancy without pacing might be a suitable alternative for women without any underlying cardiac disorder.

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