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Right Bundle Branch Block: A Case Report

[1]Passang Droima Bapu, [2]Babita Kumari, [3]Dr. Priyanka, [4]Divya Thakur

[1] PG Student, Akal College of Nursing, Eternal University
[2] Assistant Professor, Akal College of Nursing, Eternal University
[3] HOD Department of MSN, Akal College of Nursing, Eternal University
[4] Assistant Professor, Akal College of Nursing, Eternal University

ABSTRACT :

Right Bundle Branch Block is a condition in which electrical conduction through the right bundle branch of the heart is delayed or blocked. This affects the normal electrical impulse travel through the heart, specifically to the right ventricle. A 55-year-old man admitted at Government Hospital, Shimla during the month of February' 2025 with the chief complaints of giddiness with presyncope frequent episodes. After the general physical examination and radiological investigation, he was diagnosed with Right Bundle Branch Block, underwent surgical procedure of pacemaker implantation. Prognosis is good and patient discharged post operatively after 3 days of hospital stay.

Key words: Electrical conduction, Giddiness, Presyncope, DDDR-MRI-Biotronik, 2:1 AV Block

1. INTRODUCTION :

Right Bundle branch Block (RBBB) is a heart condition that delays electrical signals on the right side of the heart. It can case an irregular heart beat by making the heart's electrical signal move behind the left bundle branch. RBBB can be complete or incomplete, with complete block being more serious.

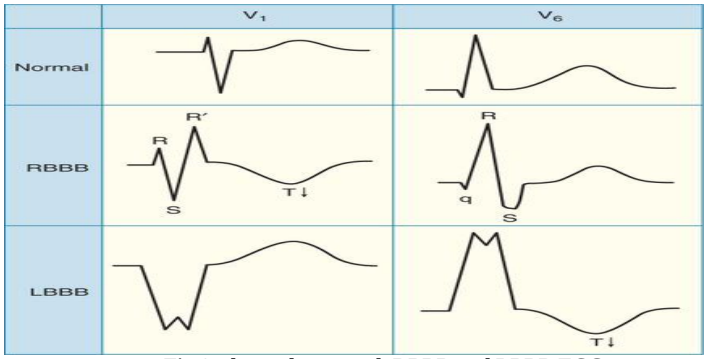

Fig.1: shows the normal, RBBB and LBBB ECG

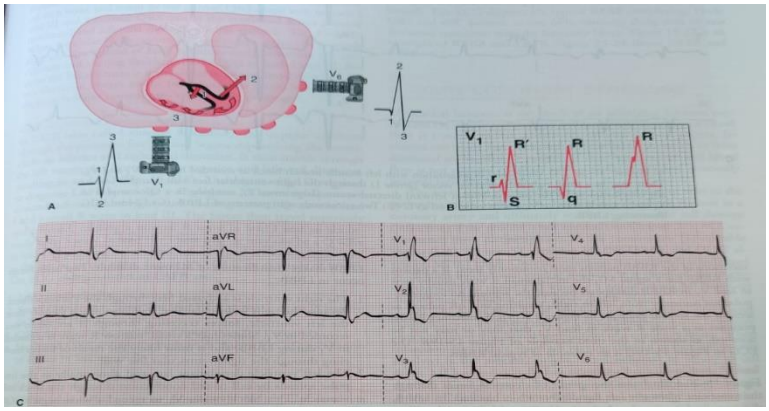

Fig.2: shows (A) Ventricular depolarization with right bundle branch block as recorded by leads V, and V. Septal activation occurs first (arrow 1) causing an R wave in V_1 and Q wave in V_6; left ventricular activation occurs second (large arrow 2) causing an S wave in V_1 and an R wave in V_6; right ventricular activation occurs last and slowly (curved arrows 3) causing an R' in V_1 and a wide S wave in V_6. (B) Three commonly seen variations of RBBB pattern. (C) 12-lead ECG illustrating RBBB.

Fig.2: illustrates the spread of electrical forces in the ventricles when the right bundle branch is blocked. Three separate forces occur:

1. Septal activation occurs first from left to right, resulting in the normal small R wave in V_1 and small Q wave in V_6.
2. The left ventricle is activated next through the normally functioning left bundle branch. Depolarization spreads normally through the Purkinje fibres in the left ventricle, causing an S wave in V_1 as the impulse travels away from its positive electrode and an R wave in V_6 as the impulse travels toward the positive electrode in V_6.
3. The right ventricle depolarizes late and abnormally as the impulse spreads by cell-to-cell conduction through the right ventricle. This abnormal activation causes a wide second R wave (called Rprime) in V_1 as it travels toward the positive electrode in V_1, and a wide S wave in V_6 as it travels away from the positive electrode in V_6. Because muscle cell-to-cell conduction is much slower than conduction through the Purkinje system, the QRS complex widens to 0.12 second or greater.

2. CASE PRESENTATION :

A 55-year-old patient was admitted at Government Hospital, Shimla, in February 2025 with chief complaints of giddiness and frequent episodes of presyncope. Following a general physical examination and radiological investigations, he was diagnosed with Right Bundle Branch Block and underwent both medical and surgical management.

Past medical history:

Patient does not have any significant past history of communicable disease and non-communicable diseases. Not allergic to any drug or food.

Present history of illness:

The patient was apparently well until the morning of the day of admission when he developed giddiness accompanied by frequent presyncope episodes. After conducting an ECG investigation, the report revealed 2:1 AV block.

Chief complaints:

Patient had complaints of giddiness with presyncope frequent episodes.

General examinations:

- Weight: 73 kg
- GCS: 15/15
- Respiratory rate: 15 breath/min
- Heart rate: 51 beats/min
- SpO_2: 98% R/A

Special investigations:

Routine blood profile, viral marker, serum creatinine, ECG.

Treatment:

DRUG	DOSE	ROUTE	FREQUENCY
Inj. Tazar	4.5 gm	I/V	TDS
Inj. Targocid	400mg	I/V	OD
Inj. Tranexa	500mg	I/V	TDS
Inj. Pantop	40mg	I/V	OD
Tab. Chymoral Forte	1 tab	P/O	TDS
Tab. PCM	650mg	P/O	SOS
Tab. Rosovas	10mg	P/O	ODHS
Tab. Limcee	1 tab	P/O	BDPC
Cap. Becosule	1 cap	P/O	BDPC

Surgical intervention:

Permanent pacemaker implantation (PPI) :- A pacemaker is an electronic device that provides electrical stimuli to the heart muscles. A pacemaker insertion is the implantation of small electronic device that is usually placed in the chest just below the collarbone to help regulate slow electrical problems with the heart. Permanent pacemaker is used most commonly for irreversible complete heart block.

Description of procedure:

With all the aseptic and antiseptic measures under local anesthesia, permanent pacemaker implantation was done via left subclavian venous access.

DDDR-MRI-Biotronik

The RV and RA leads were fixed to the mid IVS and RA appendage respectively after achieving satisfactory parameters. Both the leads were then connected to the pulse generator which was kept in the pacemaker pocket below the left clavicle. Haemostasis was achieved. Wound was closed in layers. No complication was recorded.

Pre operative orders:

The patient was kept NPO for six hours before surgery, and part preparation was completed, followed by a betadine bath. After obtaining written informed consent, IV cannulation was performed, and preoperative medication, including Tazar 1gm IV, was administered.

Surgical note:

Parameters of DDDR-MRI-Biotronik

Parameter	RV Lead	RA
R/P- Wave	9.4 mV	3.4 mV
Threshold	0.7 V	0.5 V
Impedance	900ohm	700ohm

Post operative orders:

The patient was doing well and there was no complication reported, continuous ECG monitoring was done, and the surgical site was kept clean and dry. There was no sign of hematoma or infection at the incision site. The arm movement of patient was restricted. He was prescribed with antibiotics, analgesics and vitamin supplements.

Care plans:

Nursing intervention on pain, anxiety, fluid electrolyte imbalance, sleep pattern disturbances related to hospitalization were given.

Outcome:

Right bundle branch block is a result of conduction delay in any portion of the right sided intraventricular conduction system. In this case it is 2:1 AV block and the patient had symptoms like presyncope and bradycardia which has a high risk of progression to complete heart block and sudden cardiac events. So, the surgical implantation of pacemaker was performed to prevent further complication. The implantation procedure was successfully done and had no complications.

3. DISCUSSION :

2:1 Atrioventricular Block means for every two electrical signals sent from the upper chambers, only one makes it through the lower chambers. The heart essentially skips every other beat.

This is caused due to heart disease like coronary artery disease, heart attack and degeneration of heart's electrical system due to aging. Electrolyte imbalance or certain medication like beta blockers or calcium channel blockers if taken in excess can also lead to this condition.

Symptoms like dizziness, fainting, weakness, shortness of breath or chest discomfort can be seen.

The diagnostic evaluation preferably is ECG, Holter monitoring for 24hours, echocardiogram, and blood investigation to check if there's any infection.

If it is caused by medication then adjustment or stoppage of that particular medicine can be done,

temporary or permanent pacemaker implantation is preferred if the heart rate is too slow or the symptoms are severe.

After the pacemaker implantation the recovery takes place within few days or weeks, most of the people stay in the hospital for 24 hours after implantation.

Mild pain and swelling around the incision site are normal, analgesics are prescribed for pain.

The incision site is to keep clean and dry and avoid soaking in water until doctor gives permission.

The arm movement like lifting arm above shoulder level on the side of pacemaker implant is to be avoided for 4-6 weeks to decrease the risk of displacement of leads and allowing leads to settle properly.

4. CONCLUSION :

A 55-year-old man was admitted at Government Hospital, Shimla, in February 2025 with chief complaints of giddiness and frequent episodes of presyncope. Following a general physical examination and radiological investigations, he was diagnosed with Right Bundle Branch Block and underwent pacemaker implantation. The prognosis was good, and the patient was discharged postoperatively after a three-day hospital stay.

REFERENCES :

1. Woods SL, Froelicher ESS, Motzer SU, Bridges EJ, editors. Cardiac nursing. 6th ed. Philadelphia: Wolters Kluwer; 2019. Page no. 310-312, 667-668
2. Hariprasath P. Textbook of cardiovascular and thoracic nursing. New Delhi: The Health Sciences Publishers; 2016. Page no. 272-275
3. Burns E, Buttner R, Buttner EBA. Right Bundle Branch Block (RBBB) [Internet]. Life in the Fast Lane • LITFL. Life in the Fast Lane; 2021 [cited 2025 Mar 13]. Available from: https://litfl.com/right-bundle-branch-block-rbbb-ecg-library/
4. Heather Smith RN BSN. Right bundle branch block: Symptoms, treatment, and outlook [Internet]. Medicalnewstoday.com. 2023 [cited 2025 Mar 13]. Available from: https://www.medicalnewstoday.com/articles/right-bundle-branch-block