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Anaesthetic Management of a Patient with Wolff – Parkinson – White (W.P.W. Syndrome) In a Case of Breast Mass Undergoing Excision.

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ABSTRACT

A healthy asymptomatic young individual for minor surgery could have an Abnormal Reentry Pathway of Conduction in her heart which could turn life threatening at any time and even result in sudden death. Here we report a successful management of a case of fibroadenoma Breast with W.P.W. Syndrome.

Keywords: W.P.W. Syndrome, Amiodarone.

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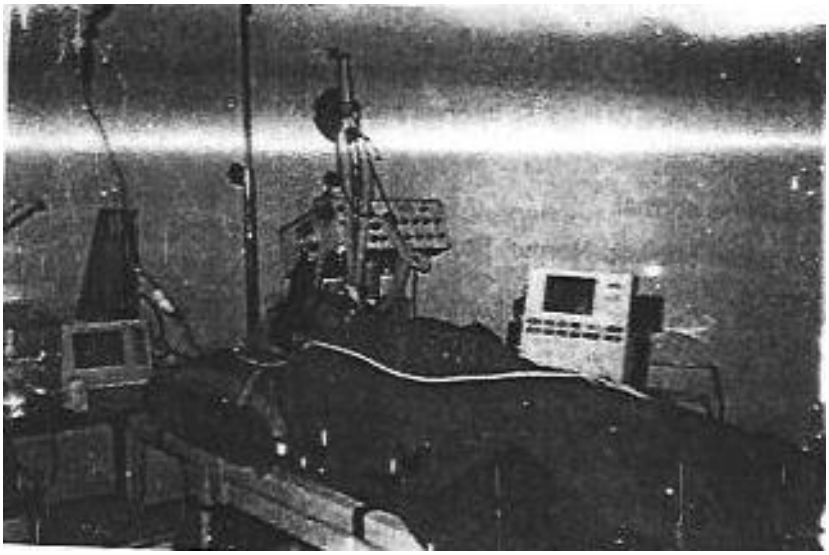
INTRODUCTION

Normally the heart beat originates in the S.A. node located in the Right atrium. The impulses then travel to A.V. Node and through the Bundie of His. Purkinjee system to the ventricles, thus establishing the normal regular pattern.



W.P.W. Syndrome is a form of Supra Ventricular Tachycardia originating above the ventricles in W.P.W. Syndrome along with the normal conduction pathway there is an extra pathway called ACCESSORY PATHWAY. This extra pathway between the atria and ventricles that' Bypasses the A.V. Junction Pre excites the ventricles.

This Accessory Pathway – conducts impulses faster than normal and in both directions. Further the impulses from the S.A. node are conducted through the normal pathway and through the extra pathway around the heart in a circular pattern causing on intense Tachycardia called Re entry Tachycardia.

The ventricular pre-excitation causes an earlier than normal deflection on the E.C.G. designated as delta wave. The greatest concern here is the possibility of having atrial fibrillation with a fast ventricular response that worsens the Ventricular fibrillation leading to life threatening status.

Types of W.P.W. Syndrome

1. W.P.W. Syndrome (Conduction through Kent Bundle)
2. WPW variants.
   a) Lown – Ganong – Levine (LGL) Syndrome (conduction through James Bundle)
   b) Conduction through unusual Mahaim fibres producing fascicular tachycardia.

Case Report

A 21 year old young woman with a painful mobile, mass in the upper outer quadrant of the breast gradually increasing in size diagnosed as ? fibroadenoma Breast was posted for Excision Biopsy.
She gave a history of mild palpitations when subjected to fear. But there was no history of dizziness, fainting attacks or dyspnoea. There was no H/O. Previous surgery.

On examination her cardio vascular system was normal. A routine E.C.G. taken, revealed a shortening of the P.R. interval and a slurring of the QRS complex called the Delta Wave.
Xray Chest was normal.

An Echo taken showed Normal Study with an E.F. of 65%. All other investigations were normal.

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She was accepted for general anesthesia under Grade III risk with the risk explained to the patient. A high risk consent was taken. Pre-operatively she was started on Amiodarone.

In the operation theatre, Amiodarone belonging to Class III Groups of anti arrythymic drugs, and the 'Drug of Choice' for W.P.W. syndrome was kept ready. Adenosine, Verapamil drugs effective in treatment of tachycardia associated with W.P.W. Syndrome were kept ready.

A defibrillator for Electrical Cardio version was kept ready. The 'Goal of Management' of Aneshthesia was to avoid any event like increased sympathetic nervous system activity due to anxiety or hypotension.

Atropine was avoided since it would increase the heart rate. Glycopyrolate along with Ondensetron was given IV as a premedicant.

I.V. Fentanyl followed by I.V. propofol was given. An adequate depth of anesthesia was vital, since light planes of anesthesia would trigger re-entry pathways. Excision of the mass was done under GA through Face Mask with $N_2O + O_2$ with propofol I.V. Supplimentation.

Monitoring

Since the surgery was not complex and non-cardiac. Noninvasive routine monitoring of Oxygen saturation, Respiratory rate, Blood pressure and ECG were done.

DISCUSSION

Incidence

W.P.W. occurs between the ages of 30 and 40 and is a RARE CONDITION.

1. Random – Occurs in 1-3 1/1000 persons Men have a higher incidence than women, men also have a higher incidence of multiple accessory pathways.
2. Congenital - In some it is inherited. If genetic the 10 relatives have an incidence of 55/1000 persons. 7-20% patients have congenital defects of the heart.

Patients with W.P.W. Syndrome are prone to sudden tachydysarrhythmias Symptomatic tachydysarrhythmias begin during early adulthood. The first manifestation of the W.P.W. Syndroms may appear during the Syndrome is 'Sudden Death' due to Ventricular Fibrillation.

The tachydysarrhythmias could be Antidromic (Wide Complex) which could be treated with drugs or Electrical Cardio version. If Orthodromic (narrow complex) arrhythmias it could be treated with.

a. Carotid Massage
b. Valsala Maneuver (Stimulation of Post Pharynx)
c. Adenosine

Digoxin and verapamil increase the conduction of the Bypass tract and should be avoided. Transvenous radio frequency catheter Ablation of the Bypass tract offer life time cure. Patients with W.P.W. Syndrome posted for elective surgery should continue to receive anti-dysrythmic drugs or should be stabilized on them if they are 'symptomatic and reverted to sinus rythmn.

When general anesthesia is given, it is vital to minimize the increased sympathetic nervous activity of laryngoscopy and to avoid any abrupt changes in the intensity of painful surgical stimulation.

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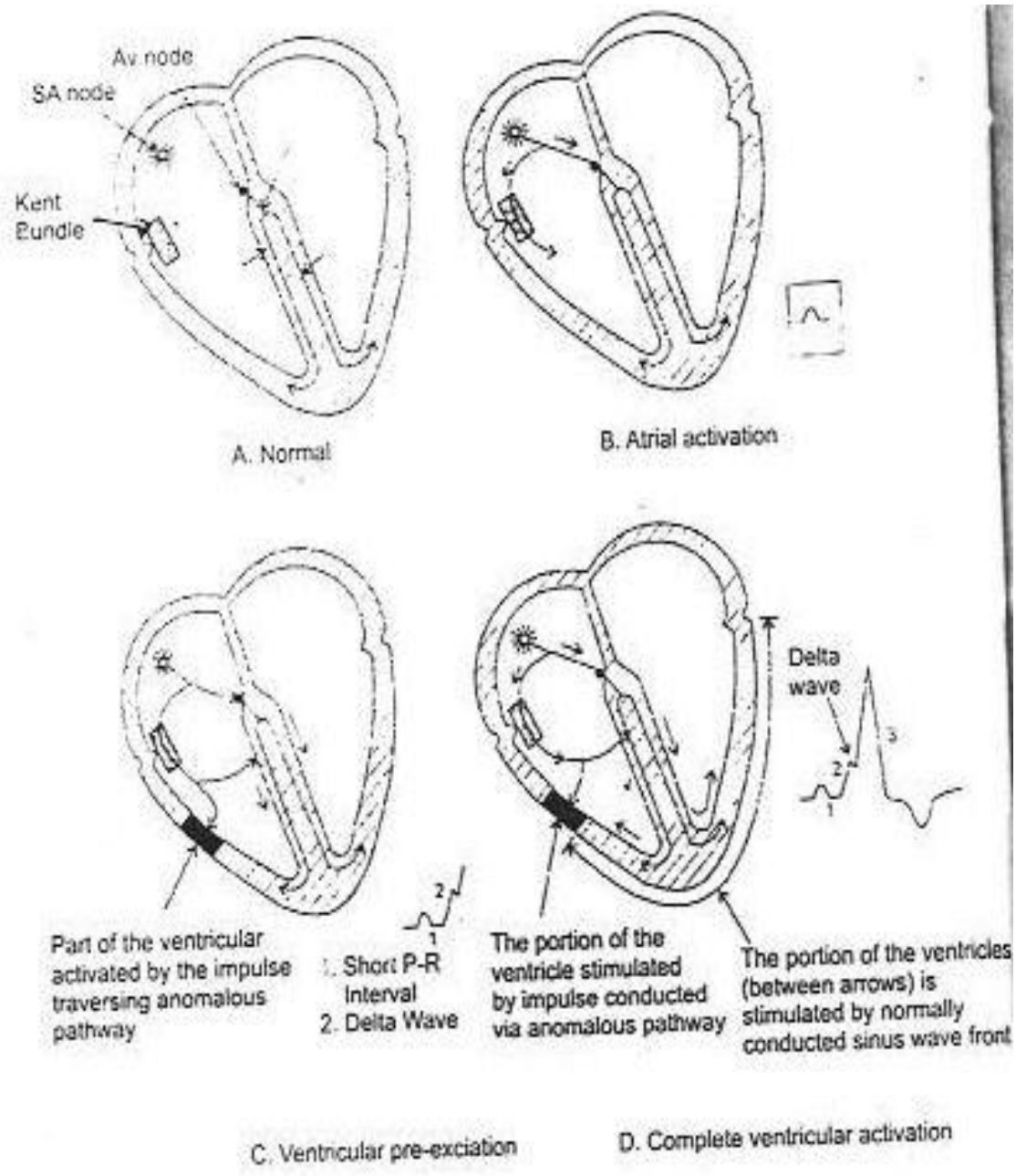

A classic WPW syndrome pathogenesis (diagram). The conduction proceeds through anomalous pathway (A) anatomy of basic anomalous pathway. (B) Atrial activation producing a normal P wave. (C) Ventricular activation (preexictation). A part of the ventricle (shaded) is activated prematurely by a part of activation front that has traversed the anomalous tract to reach the ventricle earlier than normal sinus activation front. The short P-R. interval and delta wave indicate premature excitation of ventricles is activated by the normally conducted sinus impulses, thus ventricular activation process is completed leading to wide QRS.

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Dr

Name

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ELECTROCARDIOGRAPHIC OBSERVATIONS (RESTING ECG)

RATE

RHYTHM

MECHANISM

P WAVE

PR

QRS

HISTORY

ST

T WAVE

Q WAVE

AXIS

POSITION OF HEART

PRECORDIAL LEADS

BP

PHYSICAL FINDINGS

DRUGS

CONCLUSIONS

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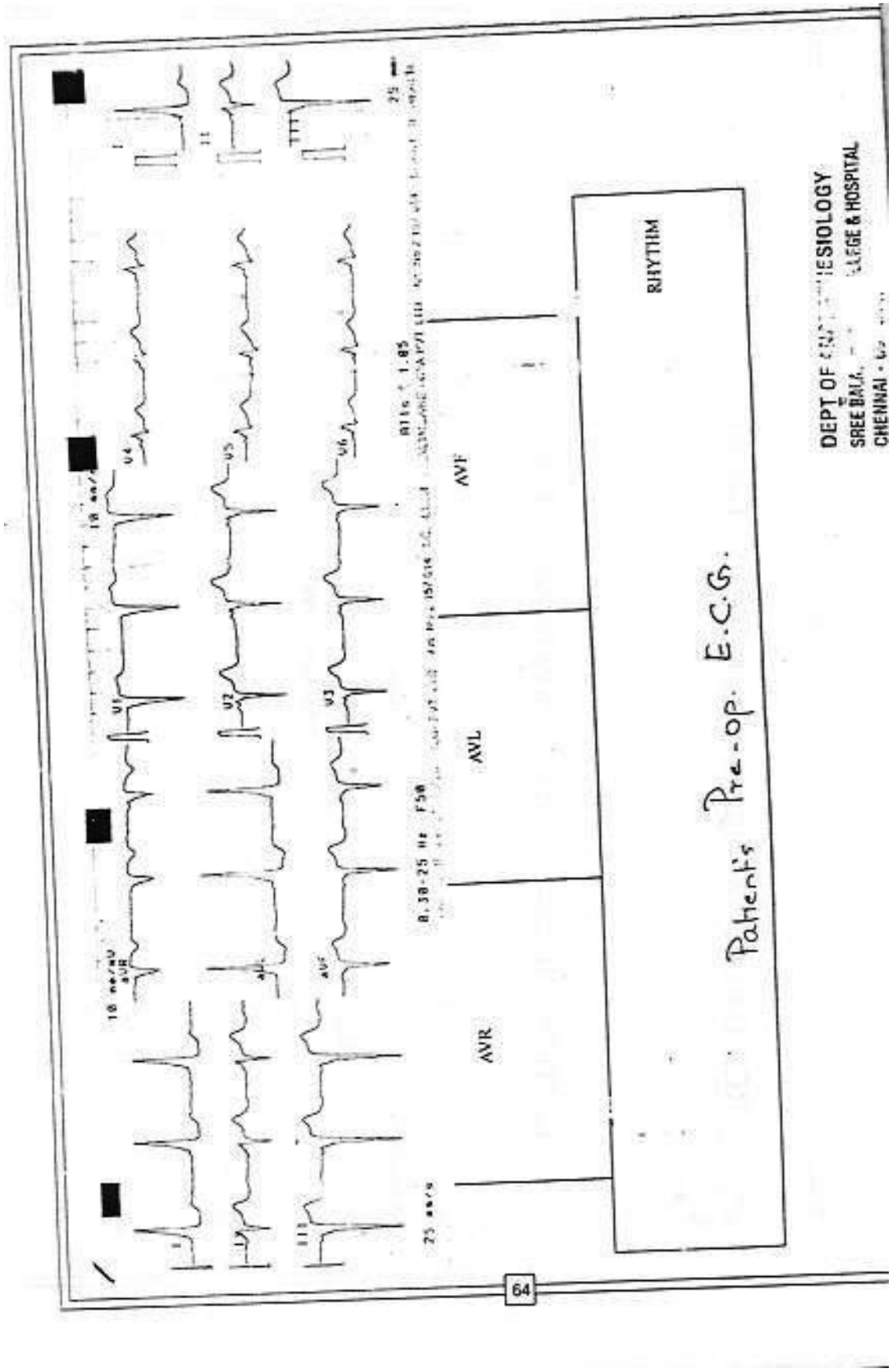

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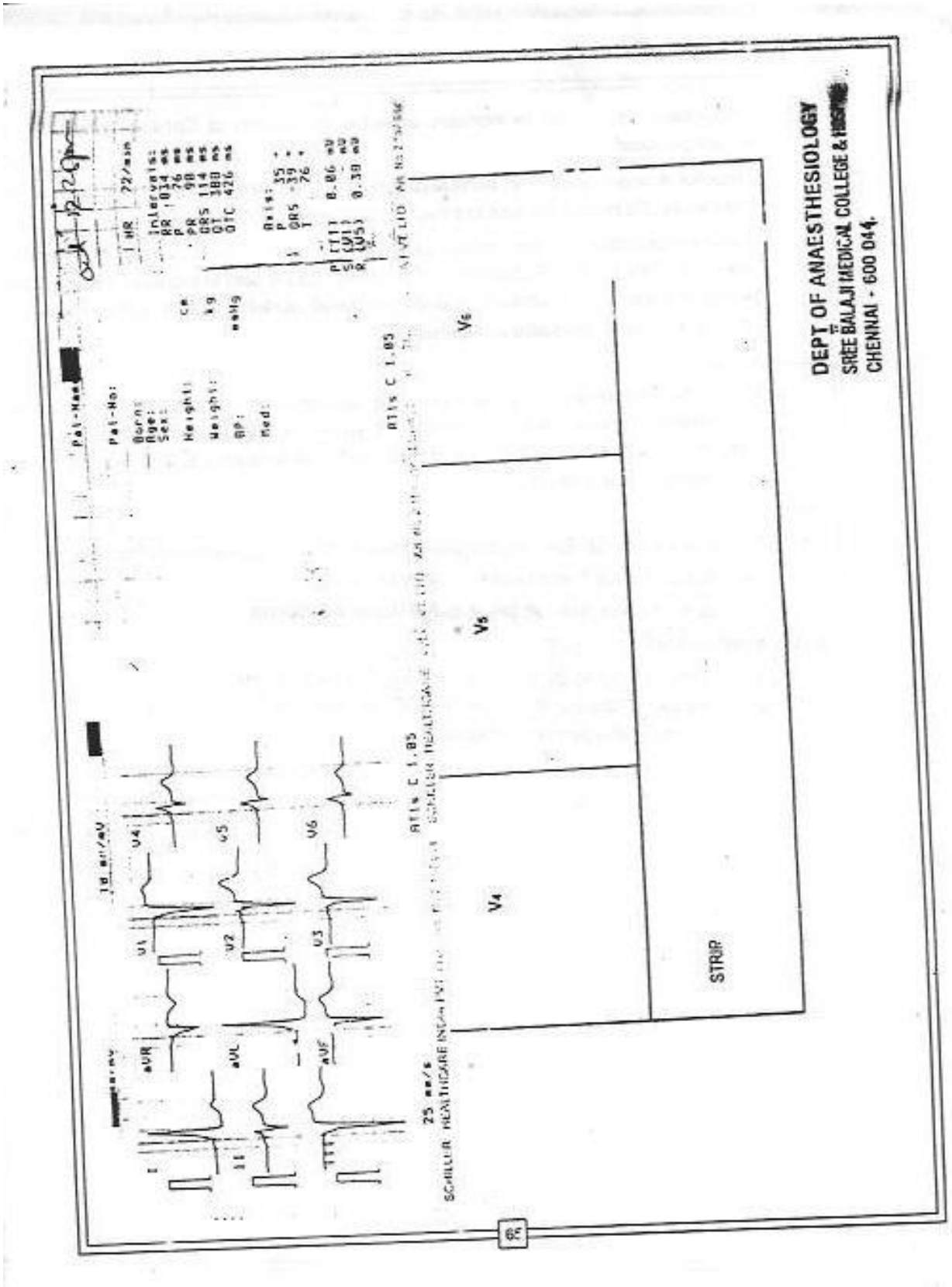

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Thiopentone is alleged to increase aberrant conduction of Cardiac impulses and should avoided.

Propofol is associated with normalization of E.C.G. and the disappearance of the delta wave. So propofol is said to be appropriate drug for W.P.W. Syndrome.

Volatile anaesthetic in appropriate concentration to decrease sympathetic nervous system activity is ideal. Enflurance though rarely used is said to increase the refractory period of accessory pathways and is considered useful in W.P.W. syndrome N_2O is often combined with volatile anaesthetics [1,2].

CONCLUSION

W.P.W. Syndrome which can be completely asymptomatic and diagnosed on routine examination for non cardiac surgery in a young individual can suddenly turn life threatening and even result in sudden death. So a routine E.C.G. for all cases preoperatively is a must.

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