

VISCERO CARDIAC REFLEX

(A Case Report)

by

ARUNA RANGNEKAR
MANORAMA SINGH

and

V. K. CHAWLA

Introduction

Cardiac irregularities during surgery are not necessarily due to anaesthetic agents only but vagal premodinance also plays an important role in such cases. Stephenson *et al* in 1963 reported five deaths due to traction on mesentery and a total of 150 deaths due to vagal stimulation were reported by them.

A case of viscerocardiac-reflex where hysterectomy was being done under general anaesthesia and patient developed sudden severe hypotension leading to impending cardiac arrest due to traction on uterine vessels. With immediate measures the patient was revived but again went into shock twice with resumption of the step of operation.

Case Report

Patient R.S., aged 35 years was admitted for on 28-3-1981 irregular vaginal bleeding for the last 6 months. She was extremely anaemic (Haemoglobin 4 gms per cent). She was given two units of blood transfusion and other supportive therapy which brought her Haemoglobin level to 9 gms per cent. All pre-operative investigations including E.C.G. were normal.

From: Deptt. of Obstet. & Gynec. Gandhi Medical College, Bhopal.

Accepted for publication on 2-9-85.

Anaesthesia and Operative Procedure

Anaesthesia was induced with 2.5 per cent intravenous thiopentone sodium 300 mg and intubation was facilitated with suxamethonium 100 mg. Patient was maintained on oxygen, nitrous oxide, halothane and flaxedil 80 + 40 mg, in closed circuit with controlled ventilation.

Abdomen was opened by Pfannenstiel incision and hysterectomy was started in the usual manner. When the first uterine was clamped, cut and as the clamp was steadied to be replaced by a ligature, patient suddenly became pulseless and blood pressure became unrecordable. Immediately all the anaesthetic agents were cut off and patient was switched on to 100 per cent oxygen, 8 mg of Dexamethasone sodium phosphate and 30 mg of mephenteramine were given intravenously and blood transfusion started. Pulse became perceptible and pulse and blood pressure rose to 108 per minute and 120 mm of Hg (systolic) respectively. All the anaesthetic agents were started again after the patient remained stabilised for 15 minutes.

Ligation of uterine artery was tried again but again blood pressure level dropped to unrecordable level. 100 mg of Hydrocortisone sodium succinate was given intravenously along with 100 per cent oxygen and I.P.P.V. Hysterectomy was abandoned and keeping the clamp in place, protruding out of the abdominal incision, abdomen was closed after packing the open fold of broad ligament with roller gauze. The end of gauze was brought out of the abdominal incision. Gradually the pulse became perceptible and blood pressure rose to 110 mm of Hg.

Reversal of anaesthesia was done by 0.6 mg of atropine and 1.5 mg of neostigmine. Extube

tion was done when protective reflexes returned uneventfully.

Patient remained normotensive throughout. After 48 hours the patient was wheeled back to the operation theatre and keeping every emergency measure in readiness to deal with haemorrhage which might result after removing the clamp and pack, the clamp and pack was removed without opening the abdomen. Removal of clamp and gauze did not show any signs of internal haemorrhage and the patient remained perfectly well. She was discharged from the hospital without hysterectomy on the 12th post-operative day.

Six months later she underwent hysterectomy under general anaesthesia but luckily this time the operative and post-operative period was most uneventful.

Discussion

Cardiac irregularities or cardiac asystole due to vagal reflex mechanism is unusual but may cause serious problem on the operation table under anaesthesia.

Lee and Atkinson, have mentioned that the stimulative source may be from rectum, cervix, uterus, glottis, bronchial tree, extra ocular muscles and mesentery.

Cardiac irregularities can also be caused reflexly through cardio-vascular regulatory centres by abnormal afferent stimuli originating from viscera during their handling in surgical procedures. Very often pathways of the reflex are through the sympathetic system resulting in vasoconstriction and tachycardia. But occasionally the afferent impulse of these abnormal stimuli may run along vagal branches to the cardio-inhibitory centre in the medulla. The reflex arc is completed by an efferent impulse run-

ning through vagus nerves to heart thus resulting in bradycardia. That this reflex arc does exist has been confirmed by directly stimulating the gastric vagi. Kealing has considered this clinical syndrome as "viscero cardiac reflex". Probably the same situation might have been responsible in this case.

Beaker has emphasized the role of gentle manipulations in this abnormal reflex. Such complications are seen more in malnourished patients. He feels that the low glycogen reserve depresses, the heart both directly or indirectly by increasing its sensitivity towards acetylcholine. Anoxia in such patients would therefore be extremely dangerous and viscero cardiac reflexes far more active, the reflex arc can be interrupted by section of vagi or by the use of atropine. It requires 1.5 to 2.0 mg of atropine sulphate to abolish the viscero cardiac reflex.

Atropinisation, adequate depth of anaesthesia and gentle handling of viscera during operation are of utmost importance and must be duly considered under such circumstances.

References

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