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Case Report

Coronary Artery Bypass Surgery in Guillain Barre Syndrome

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Abstract

Guillain Barre Syndrome (GBS) is a rare autoimmune inflammatory polyneuropathy with established acute phase morbidity and mortality. Despite the positive outcome in majority of cases, there is hesitance in subjecting these patients to major surgical interventions under general anaesthesia. This case documents the successful undertaking of major coronary artery grafting under cardiopulmonary bypass and general anaesthesia, in a GBS patient. A review of the pathology is presented and the controversy addressed.

Introduction

Guillain Barre Syndrome (GBS) is established as a polyneuropathy with flaccid paralysis, usually of peripheral and occasionally central nature. Few guidelines exist regarding the undertaking of lengthy operations under general anaesthesia in such patients. We present the course of successful cardiac bypass surgery in a GBS patient, and indicate future implications toward major operative intervention in GBS.

Case Report

A 48 years old gentleman, a known case of hypertension and type II diabetes mellitus, presented with a three months history of exertional chest pain. He had recently undergone a myocardial infarction and subsequent cardiac catheterization had revealed severe three-vessel coronary artery disease.

A few months back the patient had developed spontaneous progressive weakness of lower limbs, which resolved at that time by administration of intravenous immunoglobulins and steroids. There was no history of infection. Recently, however, the deficit had recurred with distal motor neurological involvement of the upper limbs, which was accompanied by bilateral foot drop. An electrodiagnostic study revealed diffuse sensori-motor (predominantly motor) axonal polyneuropathy. A clinical diagnosis of GBS was established and patient was started on long-term corticosteroids.

Despite the subsiding of the acute inflammatory polyneuropathy, at the time of presentation, the patient still had peripheral neurological insult with a definite chance of recurrence and long term neurological residual deficit. However, in view of unstable angina pectoris, with angiographically proven multivessel coronary artery disease, there was a need for urgent myocardial reperfusion. In consideration of the established risks with cardiopulmonary bypass surgery, a detailed anaesthetic and cardiac evaluation was done to ascertain if the patient would tolerate the lengthy bypass procedure without suffering from any neuromuscular respiratory or any other complication.

An assessment of myocardial vasculature during the procedure indicated the need for a five-vessel bypass grafting, which was undertaken. Meticulous anaesthetic evaluation ensued during the operation. The patient tolerated the procedure well with no hemodynamic or neuromuscular compromise during either anaesthesia or bypass surgery.

At follow-up the patient had a gradual but definite post operation recovery, with no further cardiac symptoms.

Discussion

GBS is an acutely evolving, immune-mediated, inflammatory disorder of the peripheral nervous system, leading to demyelination and axonal loss. Potentially reversible, it is currently considered as one of the commonest causes of acute generalized flaccid paralysis. Whilst etiology is unknown, the incidence of neurological symptoms is usually preceded by upper respiratory or gastrointestinal infection.[1]

Primarily an acute polyradiculoneuritis, the essential characteristic is of spontaneous onset paralysis and gradual recovery. Symptoms can range from numbness and tingling with mild weakness to total paralysis requiring mechanical ventilation. The hallmark of its clinical presentation is symmetric flaccid paralysis and areflexia. The ascending motor signs and symptoms may be accompanied by non-characteristic sensory involvement. As in this case, disease usually progresses from lower to upper limbs.[2] The acute phase may be accompanied with respiratory insufficiency and autonomic dysfunction.

Investigations reveal increased protein content in cerebrospinal fluid and electrophysiologic demonstration of

evolving demyelination.[3] Even though the acute phase is generally short lived and spontaneous resolution occurs in most of the cases, ventilatory and cardiac instability in acute cases may necessitate intensive care surveillance.[2,3]

Plasmapheresis is generally considered as the most efficacious therapy known to cause significant reduction in the intensification period. Apart from rendering stability to neurological symptoms it also enables early ambulation and rehabilitation.[1,3,4] Early administration of intravenous immunoglobulins may also shorten the length of paretic intensification.[1] Despite the widespread usage of corticosteroids, some controversy exists regarding the significance of their influence on the overall outcome.[1]

Despite the documentation, of severe courses and complications, prognosis is usually favourable in majority of cases.[2,5] Increase in the duration and severity of paralytic episode, however, are indicators of poor prognosis and may lead to motor sequelae and death.[4] Even still, upto 85% of the affected cases may be expected to record an excellent recovery.[5]

With the known cardiovascular and neuromuscular compromise associated with GBS, much deliberation ensues before subjecting a patient to major surgery. Previously GBS has been reported after uneventful cardiac surgery under cardiopulmonary bypass, with surgery being postulated as the trigger for this immune mediated process.[6] Therefore, in light of previous literature, possible intraoperative cardiovascular and ventilatory compromise was feared in this case. However, owing to the worsening severe myocardial ischemia, the procedure could not be delayed. With the paucity of guidelines in literature surrounding the issue, coronary artery grafting was hence undertaken under general anaesthesia. The patient followed an uneventful intraoperative and post operation recovery course.

This is one of the rare cases reported in literature on major cardiac surgery in a patient suffering from GBS. It may indicate that with vigilant intraoperative surveillance, unavoidable major surgery may be successfully undertaken under general anaesthesia. On the basis of this report we recommend that patients with GBS should not have life saving surgery delayed or denied to them.

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