



Case Report

Can Undiagnosed Parkinson's Disease become Uncovered in Perioperative Phase? A Case Report of Stormy Postoperative Event

Rajat Choudhuri¹, Sandip Kumar Kar^{2*}, Dhiman Adhikari³, Chaitali Sen Dasgupta⁴ and Anindita Saha⁵

¹Assistant Professor, Dept of Anesthesiology, IPGME & R, Kolkata

²RMO/Cum Clinical Tutor, Dept of Cardiac Anesthesiology, IPGME & R, Kolkata

³RMO/Clinical Tutor, Dept of Anesthesiology, IPGME & R, Kolkata

⁴Associate Professor Dept of Cardiac Anesthesiology, IPGME & R, Kolkata

⁵Post Graduate Student, Dept of Anesthesiology, IPGME & R, Kolkata

*Corresponding author: Sandip Kumar Kar, RMO/Clinical Tutor, Dept of Cardiac Anesthesiology, IPGME & R, Kolkata, India, E-mail: sndpkar@yahoo.co.in

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Abstract

Parkinson's disease is the most common example of a family of neurodegenerative disorders, occurring among elderly persons who present anaesthetic challenges during operations pertaining to respiratory, cardiovascular and neurological systems. Though a common encounter in medicine, such a disease presenting for anaesthesia is relatively rare and can be challenging, especially when comes in an undiagnosed state and is manifested perioperatively. Here we are reporting one such case, posted for definitive correction of fracture shaft humerus, which in postoperative phase was revealing signs of Parkinson's disease, but was managed successfully by anti parkinsonism medication, physiotherapy and nursing care.

Keywords: Anesthesia; Parkinson's disease; Levodopa-Carbidopa; Ropinirole

Introduction

Parkinson's disease is a relatively common neurological disorder, due to loss of dopaminergic neurons of the substantia nigra that leads to resting tremor, muscle rigidity and bradykinesia. It is an important cause of perioperative morbidity and with an increasingly elderly population, it will be encountered with greater frequency in surgical patients. Hence we have tried to emphasize in this report that even after a proper preanaesthetic assessment we may miss subclinical Parkinson's disease, which interestingly can be deciphered by a vigilant postoperative follow up because of occasional unmasking of Parkinson's disease in the perioperative phase.

Case Report

61 years old gentleman, sustained injury to his right upper arm followed by severe pain, swelling and restricted movement of right arm which was diagnosed by X-ray Rt. Arm as fracture shaft of right

humerus, for which conservative U-slab was done. 2 months later repeat X-ray revealed nonunion of fracture segments with posterolateral fracture fragment displacement. Pertaining to the medical history, the patient had a background H/O of coronary artery disease for which he underwent uneventful bare metal stenting in the year 2000; controlled Hypothyroid on L-Thyroxine(200 µg/day); cervical and lumbar spondylosis, impaired fasting glucose and with a Bipolar disorder on 1gm valproate, 2mg trihexphenidyl, 3mg paliperidone and 15 mg flurazepam daily. Pre-operatively patient was anemic with Hemoglobin of 8gm%, Urea 38mg/dl, Creatinine 1.1 mg/dl and ECG showing LAHB, otherwise every other investigations were normal.

Patient was adequately optimized and then was taken up for corrective operation i.e. Interlocking nail implantation 1 week later. The anesthesia planned was regional anesthesia with Interscalene approach of Brachial Plexus Block with the help of nerve locator.

Post operatively the patient was well off first 2 days in the post operative ward with normal hemodynamic. But then gradually became less interactive and slight confused. The lab features were WBC count 9700/microliter, platelet count 185000/microliter, creatinine 1.3 mg/dl, CPK level 126 IU/L.

However on 4th post operative day patient was clinically confused, rigid with paucity of movements, slowness of movement, reduced facial expression, sialorrhoea, occasional tremors in activity. Patient was receiving the previous pre op medications continuously in the postoperative period. His lab investigations revealed Hb 8.5 gm%, WBC count 9400/microliter, CPK level 112 IU/L, platelet count 185000/microliter, CRP level was normal. His body temperature was within normal limits, no oliguria was present.

His GCS was 13. But there was a persisting sialorrhoea, hypokinesia, resting tremor and rigidity in all the peripheral extrimities, which was now thought to be a precipitated primary Parkinsonism. As the patient was unable to cough hence physiotherapy and provocative coughing maneuvers were practiced. Ryles tube was inserted for early enteral feeding and to avoid oral feeding and altered deglutition tone induced aspiration.

Deep vein thrombosis prophylaxis in the form of Enoxaparin (40 mg OD) and elastic stockinette was added. The patient was given T.Ropinirole (0.5 mg TDS), Carbidopa (25 mg OD) and Levodopa (250 mg BD) through Ryles tube. Within a week his mobility improved and rigidity was reduced. He was planned to be discharged after partial correction of the Parkinsonian features with ongoing therapy through Ryle's tube.

After another 10 days of observation and final antiparkinsonism drug dose escalation he was discharged home after a stormy post operative phase.

Discussion

Parkinson's disease occurs worldwide, affecting all ethnic groups with a very slight male preponderance [1]. There is about 30-40% decrease in complex-1 activity in the substantia nigra pars compacta which may contribute to energy failure and hence predispose the pars compacta to toxic insults and increase its susceptibility to cell death. Oxidative stress may be caused by an increase in the number of reactive species including hydrogen ions, superoxide, peroxy. These

react with proteins, lipids, and nucleic acids altering their structure and function and causing cellular damage [2]. Sporadic and idiopathic Parkinson's disease account for nearly 75% of all cases of Parkinsonism; the remaining 25% result from genetically defined aetiologies and other causes including other neurodegenerative disorders, cerebrovascular disease and drug [3], surgical stress, anxiety. Secondary parkinsonism is similar to Parkinson's disease, but it is caused by certain medicines, a different nervous system disorder, or another illness which include: Brain damage caused by anesthetic drugs (such as during surgery), Carbon monoxide poisoning, Mercury and other chemical poisoning and overdoses of narcotic [4,5].

Patients with Parkinson's disease most commonly present for urological, ophthalmological or orthopedic procedures, and elderly surgical patients may have undiagnosed Parkinson's disease [6]. Anesthetic management is also required for specific surgery (to control the symptoms of Parkinson's disease when medication becomes less effective or the side effects become intolerable) aspallidotomy, thalamotomy or neuro-augmentive procedures, deep brain stimulation (DBS), transplantation or restorative surgery.

Apart from a routine history, physical examination and preoperative testing, patients with Parkinson's disease require additional assessment. As many as 24% of subjects of Parkinson's disease were newly diagnosed at the time of preanesthetic examinations. This highlights the difficulty of diagnosis and emphasizes that many elderly hospital patients may have undiagnosed Parkinson's disease [7] and our case is one such example. Exacerbations are common in Parkinson's disease, associated with more advanced disease and usually attributable to treatable secondary causes such as intercurrent infection. Increased recognition of these underlying causes may help to decrease morbidity, reduce health care costs and optimize quality of care. Other common etiologies were anxiety, medication errors, poor adherence and medication side effects [8].

Preoperatively we could appreciate that our patient had Coronary artery disease for which bare metal stenting in the year 2000 was done; had controlled Hypothyroidism, Bipolar disorder, impaired fasting glucose, cervical and lumbar spondylosis. Keeping these comorbidities in mind we went forward with regional anesthesia in this case. Though Regional block was successful and perioperative phase was uneventful, 2 days later in the ward in postoperative phase we observed that the patient was developing new onset confusion. On 4th post operative day we found the patient to be confused and his extremities were rigid, and there was paucity and slowness of movement, reduced facial expression, sialorrhoea, occasional tremors in activity. So then our suspicion arose that we might be dealing with a Parkinsonism patient.

We retrospectively scrutinized that we fortunately did not perform anything/ administer drugs (butyrophenones, phenothiazines, metoclopramide [9]) that could aggravate the disease and no sedation was given and the operation underwent only with brachial plexus block. Patient had already pre-existing mood disorder and here according to our assumption his increased anxiety during operation may be the cause of sudden precipitation of parkinsonism. The possibilities in acute onset rigidity could have been sepsis, neuroleptic malignant syndrome and the effects of drugs that the patient was receiving. But all were ruled out through total counts, clinical status, CPK reports and the drugs were continued since many years without such phenomenon. So such an event might be a precipitated

parkinsonism due to anxiety and stress induced phenomenon.....as being proven in evidence based medicine.

After surgery, patients are more likely to develop confusional states and hallucinations in a patient with parkinsonism [10] which was evident in our case.

Delayed postoperative unmasking of Parkinson's disease has also been reported previously where 18 months after the operation, an otherwise healthy man who underwent cholecystectomy complained of dystonic reactions and was finally diagnosed to have Parkinson's disease [6].

So this case is another example of such an issue.

Respiratory abnormalities have been noted in such patients particularly aspiration pneumonia [11] which we did not encounter in our case. Upper airway dysfunction is an important factor in the sequelae of retained secretions, atelectasis, aspiration and respiratory infection which are frequently seen in patients with Parkinson's disease.

Abnormalities of swallowing have been demonstrated in 92 % of Parkinsonian patients studied using video fluoroscopy and tracheal aspiration was seen in 46% [12]. Gastrointestinal function usually is abnormal and disturbances in deglutition, esophageal motility and colonic movement occur [13]. Upper airway muscles may also be involved in extra pyramidal disorders producing dysfunctional airway obstruction with abnormal flow/volume loops [9]. Because of all above reasons we performed early Ryle's tube insertion and nursing care in this group of patients. Prolonged immobility producing venous thrombosis was a risk [9]. Hence thromboprophylaxis was promptly instituted.

In order to prevent exacerbation of the disease, it has been suggested that the oral preparation should be given 20 mins before surgery [14]. Medications like levodopa, carbidopa should be continued after surgery by nasogastric tube if necessary [8]. So though preoperatively there were no definitive symptoms or signs of Parkinsonism, but once we could detect, drugs were given via Ryle's tube to which he responded.

Thus though postoperative phase was stormy, quite unpredicted, but early detection of post operative complication and proper intensive care therapy helped ultimate recovery and discharge of the patient.

Conclusion

Though preoperative anesthetic evaluation should try to screen out the comorbidities meticulously, but even if a disease like Parkinsonism is missed in preoperative assessment, we must give importance to postoperative follow up of all cases as unexpectedly it may develop in perioperative period. Only a keen, vigilant and knowledgeable anesthesiologist with good anticipation can diagnose these uncovered facts at an earlier stage and can manage successfully to reduce morbidity and mortality of such patients.

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