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Post Anesthesia Clumping of Cauda Equine Nerve Roots after Hip Replacement Surgery - Allegation of Medical Negligence: A Case Report and Review

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Abstract:

Total hip and knee arthroplasty (TKA and THA) have been quoted to be some of the most successful operations and performed in an increasing number of patients every year around the world to reduce pain and improve function. Also, postoperative activity levels are disappointingly low in many patients, and around 20% of patients are socially isolated following surgery.[1,2] Additionally, some of the patients report chronic pain after THA and TKA, respectively. Given the negative physical and psychological consequences of these factors on outcomes such as all-cause mortality, return to work, and leisure activities, there is a significant rehabilitation challenge for this population. The post-surgery patient's sufferings may lead to allegations of medical negligence. Proper communication, rehabilitation strategy may be beneficial for the good outcome. Here we are presenting a case report and review of literature in relation to a case of a 47 years old lady who filed a complaint at National Human Rights Commission in which it was alleged that due to negligence and wrong treatment/operation by the doctorsat a tertiary care hospital, she became handicapped as she lost function of her both lower limbs.

Keywords: Arthroplasty; Cauda Equine Nerve Roots; Chronic pain.

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Introduction

Today total hip replacement (total hip arthroplasty, THA) is one of the most successful surgical procedures in the field of orthopaedic and trauma surgery. To patients with osteoarthritis of the hip, it offers significant pain relief, improved quality of life and increase mobility, in both the medium and long term3.Yet complications after total hip replacement can be very challenging for both the patient and the surgeon. Complication rates after primary hip arthroplasty range from 2% to 10%, including4: aseptic loosening (36.5%), infection (15.3%), THA dislocation (17.7 %).

Cauda equina syndrome (CES) is infrequent and may be associated with spinal/epidural anesthesia (including bupivacaine, lidocaine, ropivacaine, and tetracaine). Several etiologies have been proposed for CES, including direct or indirect neural trauma, inadvertent dural puncture, infection, and/or increased ischemia to the cord attributed to the lithotomy position5,6.

Case Report

The patient filed a complaint of medical negligence in her treatment for Total Hip Replacement Surgery. In her complain she mentioned that she was first operated by an orthopaedics consultant for left hip replacement and discharged after 5 days. She was apparently alright for a period of five months and during her visits to her endocrinologist she was

advised not to undergo hip replacement of other hip due to her health condition. She was suffering from hypothyroidism, Diabetes and Hypertension and was on regular medications for the same.But the orthopaedics consultant differed in opinion and asked her to get admitted in the hospital for the procedure. On subsequent day she was shifted to operation theatre where spinal anaesthesia was given and THA was performed. The procedure was uneventful. After few hours, she was asked to move fingers and toes, but she could not move toes of her right foot. Post-op MRI did not show any evidence of compression of nerve in hip joint. Meanwhile, the patient got an MRI Scan from another tertiary care govt hospital which revealed diffuse posterior bulge at L3/4 and L4/5.Follow-up scan showed degenerative disc changes with diffuse disc bulge with clumping of Cauda equine nerve roots-likely post spinal (epidural) anaesthesia changes.Now after the failure of the operation, the doctor informed her that it happened due to entry of anaesthetist's needle in third space. She further alleged that the procedure of THA of her right hip was not done by a specialist orthopaedic surgeon (because the surgeon who previously operated her for THA on right hip went on leave, for a period of 07 days, after scheduling the surgery) but by junior doctors.

Following her complains a medical board was constitutedwhich included five orthopaedics experts and they made the following observations.

Pre-Anaesthetic Check-up Record was complete. The patient was seen on 5 occasions before declaring her fit for surgery. The patient was having co-morbid condition like diabetes (6–8 years), hypothyroidism (4 years) and hypertension. Anesthesia and progress report were complete. The patient was managed by multi-disciplinary approach by multiple specialists. The patient had high trust level in the proficiency of the treating doctor. She knew about the surgical protocol. As soon as it appeared, standard protocols for management were followed.As monoplegia was persistent, prosthetic support was provided towards rehabilitation with continued support from physio-therapy. There was no negligence on the part of treating doctors. The patient was operated by orthopaedics consultant and not the junior doctors, as alleged in her complain. The orthopaedics consultant also submitted that the patient had requested for providing videography of the operation in CD format, for which there was no provision available at the govt hospital. He had to proceed for 7 days leave following an injury to his right knee after operating the patient.

Discussion

Today total hip replacement (total hip arthroplasty, THA) is one of the most successful surgical procedures in the field of orthopaedic and trauma surgery. To patients with osteoarthritis of the hip, it offers significant pain relief, improved quality of life and increase mobility, in both the medium and long term.[3] Yet complications after total hip replacement can be very challenging for both the patient and the surgeon. Complication rates after primary hip arthroplasty range from 2% to 10%, including[4]: aseptic loosening (36.5%), infection (15.3%), THA dislocation (17.7 %).

Cauda equina syndrome (CES) is infrequent and may be associated with spinal/epidural anesthesia (including bupivacaine, lidocaine, ropivacaine, and tetracaine). Several etiologies have been proposed for CES, including direct or indirect neural trauma, inadvertent dural puncture, infection, and/or increased ischemia to the cord attributed to the lithotomy position.[5,6] Few studies have implicated pre-existing lumbar pathology as playing an integral role in the development of CES following spinal or epidural anesthesia.[7,8,9] Lumbosacral adhesive arachnoiditis resulting in CES may be attributed to the following: agents injected into the subarachnoid space, infection in the subarachnoid space, space occupying lesions such as neurofibroma, subarachnoid haemorrhage, vertebral trauma, or after spinal surgeries.[10]

A multi-institutional study by Erlenwein et al.[11] which included 125 patients of elective total hip replacement surgery, reported that about 26% to 58% patients still had chronic persistent pain post six months of surgery.

A review study by L D Buirs et al.[12] reported that high body mass index (BMI), high age (>60), co-morbidities have negative association with functional outcomes after THA. They also found a weak association with educational level and vitamin-D deficiency and there was no association with socio-economic status and gender.

Although post-operative mortality is improving with technical advancements, a large study by Thomas Partridge et al.[13] from NHS data conducted over a period of ten years involving 540,623 cases of THR found lower respiratory tract infection to be the complication most commonly associated with death following joint replacement. Death is a rare complication of hip arthroplasty. The in-hospital mortality rate following this surgery ranges from 0.16% to 0.52% in the United States.[14]

The patient was 47 years old. She presented with problem (damaged) in hip joint for which she was operated in both hip joints one by one by a qualified and experienced orthopaedics consultant at tertiary care centre. She had multiple systemic co morbidities like diabetes (6–8 years), hypothyroidism (4 years) and hypertension. She suffered monoplegia post 2nd surgery which is a known possible rare complication post-hip replacement surgery. The possibility of her present morbidity due to progressive deteriorating nature of the other co-morbid conditions cannot be ruled out.

The provision of definitive care while following standard care with multi-disciplinary approach at tertiary care centre and provision of care after the appearance of subsequent problems by providing prosthetic and physiotherapy support is not suggestive of inadequate patient care. The enquiry report and the statements were substantiating each other.

A two Judges Bench of Supreme Court of India in Kusum Sharma case has also laid down guidelines to govern cases of medical negligence. It was stated that negligence can't be attributed to a doctor so long as he performs his duties with reasonable skill and competence. Merely because the doctor chooses one course of action in preference to the other one available, he would not be liable if the course of action chosen by him was acceptable to the medical profession. The medical professional is often called upon to adopt a procedure which involves higher elements of risk, but which he honestly believes as providing greater chances of failure. Just because a professional looking to the gravity of illness has taken higher element of risk to redeem the patient out of his/her suffering which did not yield the desired result may not amount to negligence.[15]

Conclusion

Physicians should be alert to the rare complication of CES that may arise following spinal or epidural anaesthesia. Special attention should be paid to the patients who have undergone previous surgical intervention. Prompt identification of the precise aetiology of complications and their timely treatment that may curtail or ameliorate the devastating consequences. Financial requirements related to operation must be clarified in advance prior to the surgery, since it may enhance restlessness among the patient who is going to be operated.

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