Anaesthetic management of bilateral nasal polypectomy in a patient with Kartagener syndrome

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Introduction:
Kartagener syndrome is a hereditary syndrome involving a combination of dextrocardia (situs inversus), bronchiectasis and sinusitis, transmitted as an autosomal recessive trait. The disease primarily results from primary ciliary dyskinesia[1]. We report the anaesthetic management of a case of endoscopy assisted bilateral nasal polypectomy using regional anaesthesia.

Case capsule:
A twenty five year old, 65 kg male presented with total nasal block due to polyps protruding into the nares. He was a diagnosed case of Kartagener syndrome ten years ago in a tertiary care institution. On pre anaesthetic check up, the respiratory rate was 14/min. The apical impulse was on the right side. X ray chest, ECG and echo were done and the diagnosis of Kartagener's syndrome was confirmed. The chest was full of coarse crepitations and scattered rhonchi. General anaesthesia was considered unsafe in view of the bad lungs and regional anaesthesia was planned. The surgery was to involve the ethmoidal sinuses as well. Hence a bilateral maxillary nerve and nasociliary nerve block was planned and administered. Inj. Glycopyrrolate 0.2 mg i.m. was used as premedication.

Technique[2]: The maxillary nerve was approached via the infratemporal fossa. The needle was inserted in the skin at a point below the midpoint of the zygomatic arch overlying the coronoid notch of the mandible. After traversing the coronoid notch, the needle is directed a little medially till it strikes the lateral wall of the lateral pterygoid plate.Then it is advanced around half a cm to reach the pterygopalatine fossa[3]. After aspiration, 4 ml of 0.5 % bupivacaine was administered. The method was repeated on the other side. The nasociliary nerve was approached 1 cm above the inner canthus. The needle was directed medially and backward. At a depth of around 1 cm, 1.5 ml of 0.5 % bupivacaine was administered with constant aspiration and withdrawal of the needle. This block was done on both sides. Anaesthesia was checked on both sides in the cheek and inside the nose and found very satisfactory. The patient was conscious either to spit or swallow the blood which is expected to drip posteriorly. The surgeon with the use of a sinuscope finished the polypectomy in 40 minutes. Around twelve polyps were removed from both sides. There was complete and satisfactory anaesthesia during the procedure. The surgery and the postoperative period were uneventful.

Discussion:
Kartagener syndrome is an autosomal recessive inherited disease and a subgroup of the immotile cilia syndrome. It is characterised by situs inversus including dextrocardia and primary ciliary dyskinesia resulting in chronic respiratory tract infection, bronchiectasis, and sinusitis. Sinus involvement may include chronic infection, mucopurulent drainage, absence or hypoplasia of sinuses and polyposis. Conductive hearing loss may occur secondary to chronic otitis-media. Our patient had multiple nasal polyposes with total nasal obstruction. The anaesthetic implications of Kartagener syndrome are varied. The anaesthetist might be involved with patients who have sinus surgery, pulmonary surgery, infertility investigations or possibly cardiac surgery. Of primary concern to us will be assessment of pulmonary function, cardiac structure and function and prevention of pulmonary complications in the bronchiectatic patient. Our patient had a normal

respiratory rate with a SpO2 of 95% on breathing room air. The cardiac status was normal. As the only reported case, Chittora et al[4] reported management of nasal polypectomy in a six year old kid with Kartagener syndrome. They have reported constant suctioning of the endotracheal tube during anaesthesia and a stormy intraoperative period. As our case was an adult, we could contemplate regional techniques. In a patient with Kartagener syndrome, physiotherapy, postural drainage, antibiotics, bronchodilators and incentive spirometry have individual perioperative roles.[5] Where ever possible, local or regional anaesthesia is preferred to general anaesthesia. In thoracic surgery, the anatomy of the bronchi should be considered before selecting a double lumen tube. These problems were insignificant in our scenario of regional anaesthesia. We did not give local infiltration for the maxillary block to avoid confusion with possible block of branches of facial nerve. We know that polypectomy is prone for bleeding. As throat packing is not feasible with a regional technique, we made sure that the patient is conscious enough to swallow or spit before starting surgery. Regarding innervation of sinuses, both the ophthalmic (V1) and maxillary (V2) branches of trigeminal nerve come into play.

Maxillary sinus: Maxillary nerve (V2)

Ethmoidal sinus: Nasociliary nerve via anterior and posterior ethmoidal branches (V1)

Frontal sinus: (not involved in surgery)
Frontal nerve (V1)

Nasociliary nerve block is a mandatory in our case to anaesthetise the posterior nasal region and ethmoidal sinuses. Reidy et al[6] reported perioperative pneumonia in a patient of Kartagener syndrome who underwent lobectomy and preferred spinal anaesthesia for a pelvic surgery later for the same patient. But we did not encounter any complications. We should also be careful about the possibility of haematoma during the procedure. In our case, the block was successful and effective without any side effects.

To conclude, we suggest that a combination of bilateral maxillary and nasociliary nerve block is effective and useful to anaesthetise for a sinuscopy assisted multiple nasal polypectomy. This technique is especially useful where general anaesthesia is considered unsafe. This is presented for its rarity and successful management.

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