

Day Surgery Peripheral Nerve Block for Children Parents' Information



What is peripheral nerve block?

Peripheral Nerve Block is a type of **regional anaesthesia**. It plays an important role in pain management for children undergoing surgical procedures. Local anaesthetic drug is **injected around the nerves supplying organ(s)**. This will **temporarily block sensation and power of the corresponding parts of the body**. The site(s) of injection depend on the site(s) of surgery. For example, the anaesthesia given by dentist during tooth extraction is a common kind of regional anaesthesia.



For children, it is usually performed after children are put **under general anaesthesia or sedation**. It is used to supplement general anaesthesia to **provide pain relief** during and after surgery. Sometimes, for older children, nerve block can be used alone to provide anaesthesia for surgery.

What are the benefits of peripheral nerve block?



Peripheral nerve block provides a focused anaesthetic to a specific part of your child's body. It is intended to **help with pain relief afterwards and reduce the need for other anaesthetic drugs**. For example, your child **may not need as much strong pain-relieving medicine**, such as morphine. This will **help reducing the side effects associated with these medicines**, which include nausea and drowsiness. This may also allow your child **to be mobile more quickly** after operation and **reduce the duration of hospital stay**.

What are the types of peripheral nerve block?

There are many types of nerve block. Depending on **surgical location and need**, your anaesthesiologist may offer peripheral nerve block in various locations on your child's body, including the arms, legs, head, neck, chest, abdomen and back,

How long does the block last?

Single shot peripheral nerve block can provide pain relief from anywhere **between 2 hours to 24 hours** depending on site and drugs used.

How is peripheral nerve block done?



Your anaesthesiologist will perform the peripheral nerve block. He/she will do a **pre-anaesthetic assessment** before the procedure, including brief history taking, medical examination and reviewing your child's laboratory investigation results. He/she will also **discuss with you on the risks and benefits of nerve block procedure** and **sign the consent form with you**.

Usually peripheral nerve blocks for children will be performed after your child is put under general anaesthesia with **aseptic technique**. **Ultrasound machine** may sometimes be used to guide nerve position and needle insertion during the procedure. In some circumstances for older patients, peripheral nerve blocks may be performed while the patient is awake or sedated.

What are the risks of peripheral nerve block?



In general, peripheral nerve block for children is safe. Overall complication rate is 1 in 100 to 1 in 1,000. Infants younger than 6 month has a higher complication rate of 4 in 1000 (compared to 1 in 1000 for older children). The possible complications associated can be classified into the following groups: **Common**, **uncommon** and **rare**.

Common side effects (1 in 100)

- Failed block
- Vascular puncture
- Catheter kinking, dislodgement, leak, disconnection, obstruction, etc.

Uncommon side effects (1 in 1000)

- Short term neurological symptoms
- Local infection

Rare side effects (1 in 10,000)

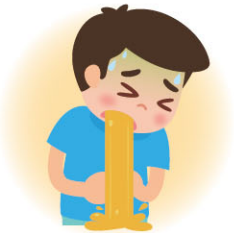
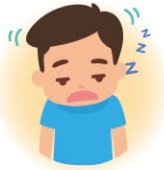
- Local anaesthetic systemic toxicity
- Long term neurological symptoms

Different approaches and locations of peripheral nerve blocks may result in slightly different incidences and types of complications.



After general anaesthesia/ sedation...

- ! Your child may **feel confused and unsteady** after procedure. It can also affect his/her **judgement** so he/she **may not be able to think clearly**. This may last for up to 24 hours.
- ! Your child **should not be left unattended by an adult** in the next 24 hours.
- ! Your child can go home after recovery from sedation **with a responsible adult escort**.
- ! Have an adult **sit next to your child** during the ride home. Young child **may fall asleep with his head fall forward or aside** under the residual effect of the sedation. This may block his airway and affect his breathing.
- ! Some children **feel sick or may be sick** on the journey home. It is useful to be prepared!
- ! After your child is fully awake and alert, you may start **feeding with sips of water**. If there is no choking/ vomiting after 10-15 minutes, your child may try **low residue fluid** eg. fruit juice, then **regular diet**.
- ! Please **take the prescribed medication and the usual medicines as instructed**.
- ! Please **contact us** if you have any problems in the following 24 hours such as:
 - ⚡ Pain that is not controlled by painkillers
 - ⚡ Persistent severe vomiting which prevents you from getting enough fluids
 - ⚡ Breathing problems
 - ⚡ Your child turns blue or very pale
 - ⚡ You cannot wake up your child from sleep
- ! Some children do not sleep well after a stay in hospital. They may be clingy and worried about leaving you. **Their behaviour may be more difficult than before**. This will usually return to normal within three to four weeks.



Safety: It may take **up to 24 hours for the strength and sensation of the anaesthetized body part to return to normal**, hence your child should be supervised while walking or crawling. Special precaution is required when taking hot baths during this period as your child **may not be able to sense temperature and is therefore at risk of burn**.

Vaccination

The current general practice is **to delay elective surgery for one week after vaccination with an inactive vaccine and three weeks after live attenuated vaccine**. This is to avoid post-vaccination symptoms causing diagnostic concern perioperatively. There are no contraindications to vaccination after surgery once the child is well and recovered from the procedure.

Pain

Why treat pain?

Untreated pain can upset the normal functions of the body and can delay how the body repairs itself. It can also have an effect on your child's behaviour. It is important to **control postoperative pain**.

Pain Medications

Your child **should continue to take regular pain relief medicine as prescribed by your anaesthetist**, even if your child is comfortable initially. This will help as the peripheral nerve block wears off. If you see your child is in pain, don't wait and give the pain medication as instructed. If you wait, it may take longer for the pain to go away.

Your child would need less frequent pain relief medicine gradually over the next few days.

Non pharmacological pain relief technique

- ✓ These strategies are **to be used with pain medication**, not instead of pain medication.
- ✓ Children should always have adequate information about their body, their illness or diagnosis and what is about to occur that may result in pain. **Explain** to your child the procedure undergone is important and the pain will become better. **Careful explanations** will help reduce anxiety and fear and will help them cope much better.
- ✓ Parents' or other primary caregivers should **stay with** the child
- ✓ **Diversion/ distraction:** play, fun, videos, computer games
- ✓ **Controlled breathing:** deep breathing, blowing bubbles/ candle/ pinwheel
- ✓ **Comforting touch:** cuddles, stroking, massage, holding, rocking, rubbing
- ✓ **Active Imagination:** Help your kid to use his/her imagination to create a safe place by focusing on pleasant thoughts. Encourage your kid to use as many senses as possible. (ie. what they see, hear, feel, smell and taste) eg. Imagine lying with a puppy, participating a favourite activity, flying on a magic carpet, etc
- ✓ **Relaxation:** deep breathing, music, relaxing muscle from head to toe

Exercises after back home

Breathing exercises



Lay your children down on their back and put a stuffed animal on their belly. When they breathe in, the stuffed toy **moves upward**. When they breathe out, the stuffed toy **moves downward**. This method teaches kids how to take big deep breaths while having some fun at the same time.



Blowing gently to create bubbles is a good way to be playful and breathe deeply.



Using a toy pinwheel: you can show your child that the slower that they exhale, the longer the pinwheel can spin. Children love to watch the colors spin around!



1. Place yourself in a quiet environment. Get into a **seated or standing position comfortably**.
2. **Place one hand on your stomach** to feel your breathing movement. Stomach should move out as you inhale, and move in as you exhale.
3. **Breathe in slowly** for roughly 4 seconds and then **gently breathe out** for 4 seconds.
4. **Imagine** your pain and tensions are being breathed away while you breathe out.

Muscle relaxation exercise

Sit/ lie down quietly, then **relax all your muscles**, or you may **slowly tense and release** different body parts in turn eg. arms, shoulders, toes, legs, back.



Inquiry

If you have any query concerning anaesthetic procedure after returning to home, you may **contact the following number:**

Pok Oi Hospital Day Ward service hour for enquiry	Monday - Friday	7:30am – 6:30pm
	Saturday Sunday or Public Holiday	Closed
Hotline: 2486 8280		
Related Wards service hour for enquiry	Monday – Friday	6:30pm – 7:30am
	Saturday Sunday or Public Holiday	24 hours
6N: 24868683 6C: 24868850 6S: 24868693 3S: 24868393 4S: 24868493		

Tin Shui Wai Hospital Day Ward service hour for enquiry	Monday - Friday	7:30am – 6:30pm
	Saturday Sunday or Public Holiday	Closed
Hotline: 3513 5280		
Related Wards service hour for enquiry	Monday - Friday	6:30pm-7:30am
	Saturday Sunday or Public Holiday	24 hours
Hotline: 3513 5690		

Alternatively please contact your **GP** or attend your **nearest A&E department**. Make sure you tell them about the procedure you have just done. We will phone contact you 1 day after surgery, should you have any problems feel free to ask us then as well.



Remarks

This is general information only and the list of complications **is not exhaustive**. Other unforeseen complications may **occasionally occur**. In special patient groups, **the actual risk may be different**. **For further information, please contact your anaesthesiologist**. Complications may sometimes occur despite all precautions. However, if they do occur, your anaesthesiologist will take appropriate steps to manage them.

Reference

1. Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine. Acute Pain Management Scientific Evidence. Forth Edition 2015.
2. Veneziano et al. Peripheral regional anesthesia in infants and children: an update. *Anaesth Pain & Intensive Care* 2014; 18(1):59-71.
3. Polaner et al. Pediatric Regional Anesthesia Network (PRAN): A Multi-Institutional Study of the Use and Incidence of Complications of Pediatric Regional Anesthesia. *Anesth Analg* 2012; 115:1353-64.
4. Ecoffey et al. Epidemiology and morbidity of regional anesthesia in children: a follow-up one-year prospective survey of the French-Language Society of Paediatric Anaesthesiologists (ADARPEF). *Pediatric Anesthesia* 2010; 20:1061-69
5. Simic D et al. The Safety and Efficacy of the Continuous Peripheral Nerve Block in Postoperative Analgesia in Pediatric Patients. *Front Med.* 5:57 (2018)
6. Kendall et al. Regional anesthesia to ameliorate postoperative analgesia outcomes in pediatric surgical patients: an updated systematic review of randomized controlled trials. *Local and Regional Anaesthesia* 2018; 11, 91-109.
7. Coordinating Committee in Anaesthesiology (2020) Peripheral Nerve Block for Children v1.0; PILIC0338C