The correct positioning and role of an external fixation device on a PEG

A percutaneous endoscopic gastrostomy tube (PEG) is the means by which long-term artificial enteral nutrition can be provided to patients. PEGs differ in design and length of use but have one device common to all – the external fixation device or bolster. This is a small piece of polyurethane or silicone that is usually circular or triangular in shape. It encircles the PEG and is designed to anchor the PEG externally and ‘prevent it from being pulled into the stomach’ (Colagiovanni, 2001) (Fig 1).

A PEG also has an internal securing device. This may be a polyurethane cone, button, or air-filled foam sac. Correct positioning of both devices is essential to minimise complications.

Points for correct positioning

- The external fixation device should be positioned approximately 2–3mm away from the abdominal wall.
- It should not be moved for 5 days following PEG insertion, except if the patient is dehydrated at the time of insertion. Rehydration will cause the tissues to expand, resulting in tightening. When a PEG is inserted the development and healing of the fistula takes 2–3 weeks (Liddle, 1995). During this period the external fixation device should not be released unnecessarily as it may delay the formation of the fistula (Arrowsmith, 1998).
- The device can be released for cleaning of the site and PEG, or insertion and rotation of the tube. To check the internal bumper position, the PEG must be gently pulled back out of the abdomen until resistance is felt. This indicates that the internal fixation device is correctly positioned against the stomach wall. The fixation device can then be repositioned 2–3mm away from the abdominal wall.
- When the tract is established, one way to minimise the correct positioning of the external fixation device

Positioning of the external fixation device

Due to a lack of evidence on the best position for the fixation device, the recommendations in this article are based on expert opinion and manufacturers’ guidelines.

Advise regarding correct positioning of the fixation device varies greatly. Pearce and Duncan (2002) say it is often a matter of personal preference for the practitioner, while Reeves and Gibbs (2000) suggest it should be placed against the skin but not too tightly. Eisenberg (1994) recommends it should not be taut against the skin.

Unfortunately these statements are open to interpretation. An actual measurement identifying the best position is more useful but again recommendations on how to achieve this vary.

Pendlebury (1997) suggests the fixation device should be placed 2mm away from the skin surface. Hanlon and Heximer (1994) suggest 8mm and Santos (1999) 1cm away from the abdomen. Not all manufacturers of PEGs give clear guidelines in their patient information but those who do quote 1–2mm. Given this conflicting advice it is not surprising that nurses are often unsure of where to secure an external fixation device.

Measurements provide a more accurate means of teaching correct positioning of fixation devices but consideration must also be given to the extension and deflation of the abdomen during breathing, laughing, coughing, sneezing, straining at stool, or general position changes.

Heximer (1997) suggests evaluating the patient in both a sitting and standing position to ensure that the external fixation device does not cause deep indentation in the skin.

The Winchester and Eastleigh Healthcare NHS Trust has adopted a standard of 2–3mm away from the abdomen but each patient is monitored to ensure that the fixation device is neither too tight, which would increase the risk of possible tissue necrosis and ulceration (Pearce and Duncan, 2002) or too loose, which would allow excess tube movement in and out of the stomach.

REFERENCES


Carolyn Best describes how the correct positioning of the tube’s external fixation device can reduce the risk of these complications and improve patient care.

KEY WORDS

Percutaneous endoscopic gastrostomy tube (PEG) External fixation device Overgranulation

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Inflammation and overgranulation are complications associated with the use of a percutaneous endoscopic gastrostomy tube (PEG). Carolyn Best describes how the correct positioning of the tube’s external fixation device can reduce the risk of these complications and improve patient care.
Granulation is when granulation tissue keeps developing during the proliferative stage of healing and forms the Overgranulation inflammation is associated with infection. Treatment with systemic antibiotics may be needed if the by the PEG can prolong the inflammatory process. healing. However, repetitive mechanical trauma caused tissue damage or bacterial invasion and is a vital part of Inflammation dressing and the site needs cleaning and monitoring daily.

incorrect positioning is to mark the PEG with an indelible marker at the point where the external fixation device should be secured (PEGs are marked with centimetre markers but these may wear off).

● If the patient gains weight it may be necessary to adjust the position of the fixation device and renew the indelible marking.

● Where a PEG is positioned in a fold of skin and irritation or ‘digging in’ is a problem, a dry keyhole gauze dressing placed under the fixation device may provide relief. The fixation plate will need adjusting to accommodate the dressing and the site needs cleaning and monitoring daily.

Treatment of complications

Inflammation  This is a non-specific local reaction to tissue damage or bacterial invasion and is a vital part of healing. However, repetitive mechanical trauma caused by the PEG can prolong the inflammatory process. Treatment with systemic antibiotics may be needed if the inflammation is associated with infection.

Overgranulation  Granulation tissue is formed by a temporary latticework of vascularised connective tissue during the proliferative stage of healing and forms the basis for wound contraction and epithelialisation. Overgranulation is when granulation tissue keeps developing after the wound defect has been filled (Myers, 2004).

It appears as a mound that extends above the surface of the surrounding epithelium preventing further healing as epithelial tissue is unable to migrate across its surface. It is often caused by an extended inflammatory response (Rollins, 2000).

In the US, silver nitrate sticks (Myers, 2004) or topical steroids (Dealy, 1999) are often used to manage overgranulation. In the UK the application of dressings to suppress the overgranulation such as foam (Rollins, 2000) or silver dressing (Leak, 2002) are frequently used. If these interventions are ineffective, the PEG may be replaced with a smaller gauge tube or resited. However, these measures should not be used as the first line of management. Inflammation and overgranulation are preventable problems. Correct positioning of the external fixation device can minimise the risk and limit the need for medical intervention.

Case study  Harry Walker is tetraplegic. He was admitted to a medical ward with pneumonia and was referred to the nutrition nurse specialist with inflammation around his PEG. The triangular external fixation device appeared to be resting against the abdominal wall but only approximately 10cm of the PEG was visible outside of his abdomen.

The fixation device was released and removed revealing the 12cm tube marking (usually 4–6cm) at the entrance to the stoma tract. A gentle pull was exerted on the PEG, releasing a further 6cm of tube from the stoma before resistance was felt.

Mr Walker often wanted the position of the triangular fixation device to be altered, particularly if his position was changed from lying to sitting. He said the fixation plate should not be placed tightly against his abdomen as he felt it was responsible for the inflammation around his tube. Nurses complied with his requests over a period of months. During this time the inflammation had become widespread and the site was infected, necessitating a course of antibiotic therapy. This was successful in treating the infection but the inflammation remained.

We discussed the need for correct placement of the fixation plate with Mr Walker and the nurses. A teaching session was devised on the ward, which included the patient. Within a week the inflammation had reduced. Two-and-a-half weeks later the site had healed completely.

Conclusion  Correct positioning of the external fixation device on a PEG tube will minimise inflammation or overgranulation tissue caused by unnecessary tube movement, and will limit unnecessary interventions from staff. Education is essential to ensure correct practice is implemented and unnecessary treatments are avoided.