

# Lip Necrosis as a Complication of a Prone Position in Scoliosis Surgery

Abdulmonem Alsiddiky

## نخر الشفة كمضاعفة لوضعية الانكباب في جراحة الجنف

عبد المنعم الصديقي

المخلص: أثناء وضعية الانكباب للمرضى الخاضعين للعمليات التقيومية للجنف، يجب حماية البروزات العظمية حتى لا تتعرض للنخر الانضغاطي، ومن الضروري وضع الوجه بحذر لحماية العينين والأذنين... الخ. ندرج حالة لنخر الشفة السفلى لمريضة عمرها 61 سنة كمضاعفات نتيجة لوضعية خاطئة للانكباب أثناء العملية التقيومية للجنف. تم علاج هذه الحالة بنجاح عن طريق سديلة تقديمية للشفة بواسطة أخصائي جراحة التجميل.

مفتاح الكلمات: شفة، نخر، جنف، مضاعفات.

**ABSTRACT:** During the prone positioning of patients for scoliosis surgery, bony prominences should be protected to avoid pressure necrosis and the face should be carefully positioned to protect the eyes and ears, etc. The author reports a lower lip necrosis in a 16 year-old female as a complication of improper prone positioning during scoliosis surgery. The condition was treated successfully with an advancement flap.

**Keywords:** Lip; Necrosis; Scoliosis; Complication; Case report; Saudi Arabia

PATIENT POSITIONING FOR SURGICAL procedures has long been associated with intraoperative complications; this is especially true for surgery in the prone position. Reported complications resulting from the prone position are usually related to neurovascular injuries, eyes and ears. Other reported complications are related to loss of airway, monitors and catheters or to venous air embolisms.<sup>1,2</sup> Ventilatory and haemodynamic changes have also been reported in the prone position,<sup>3</sup> as well as pressure necrosis of the skin.<sup>4</sup> To the author's knowledge lip necrosis has not been reported before in English medical literature as a complication of the prone position.

## Case report

A 16 year-old female, a known case of right thoracic scoliosis (idiopathic type) was admitted to the Orthopedic Department at College of Medicine, King Saud University, Riyadh, Saudi Arabia, for elective surgical correction and spinal fusion for the scoliotic curve. During the procedure, the patient was placed in a prone position as is usual for

posterior surgical correction in scoliosis surgeries.

During the operation, gel pads were placed under the chest and another one against both iliac crests with a pillow under both feet to relax the knees which were also supported by separate gel pads. The face was supported with a gel pad too, but it was placed on the operating table not on a horseshoe head support. The endotracheal tube was fixed and maintained by tape over an airway protector to protect the lips and teeth as well as the tongue. The procedure was done under the continuous control of the motor evoked potential and sensory evoked potential. These give stimulation through the cortex and transmit the signals through the spinal cord for certain muscles to contract in upper limb as well as the lower limbs. In this way, the status of spinal cord conductivity and affection during the corrective surgery of scoliosis is checked. The time taken for the procedure was four hours.

After the extubation we noticed that the patient had a swelling in the left side of the lower lip. There was no wound on the lips. The eyes, cheeks, chin, ears, and other bony prominent areas were not affected. After discussing the case thoroughly



**Figure 1:** Swelling of the lower lip.



**Figure 2:** Area of necrosis of the lower lip (black arrow).

with the anaesthetist, we thought that the cause of this problem was a direct pressure from the endotracheal tube which was pushed against the lip by the gel pad support for the face. The swelling in the lower lip was observed for few days without any spontaneous improvement. Six days later, an area of the swollen lower lip became black and necrotic [Figures 1 and 2].

The patient was seen by the plastic surgeon who continued the observation and dressings for the necrotic part of the lower lip for ten more days, but no improvement was noticed. The plastic surgeon therefore then decided to take the patient for advancement lip flap surgery of the lower lip. This was done successfully fifteen days after the original surgery. The dressing for the lip and the flap were changed daily. The patient was followed up by the plastic surgeon in his clinic. Three months later, the patient had recovered well with complete healing of the lower lip with a very minimal scar [Figure 3a & 3b].

## Discussion

Pressure necrosis of the skin is a well-known complication for patients who undergo lengthy surgical procedures under general anaesthesia. The condition occurs more frequently in patients undergoing surgical procedures in the prone position.<sup>5,6</sup>

It is crucial that both the surgeon and the anaesthetist are aware of the risks and the need for careful positioning of the face, eyes, ears, breasts, genitalia, and other dependent areas to prevent

pressure sores or skin necrosis.<sup>7,8</sup> Other areas that also need care include the iliac crests, the chin, eyelids, the nose, and the tongue.<sup>9,10</sup>

The case reported here had a lower lip necrosis secondary to direct pressure of the endotracheal tube which had been pushed by the gel pad against the lower lip as a result of improper head positioning.

Previously, a horse shoe (c-shape) head support which has free space around the lower part of the face was routinely used. With this device there would not be any risk of pressure around the mouth and lower part of the face. It was not used in this case because of the anaesthetist's preference for the use of a gel pad. This unfortunate complication is rare and could be avoided by following the strict precautions of prone head positioning and the use of the proper devices as well as continuous checkups by the attending anaesthetist.

Many devices have been described to be used to protect the face during prone position other than the well known horse shoe head support. In 2007, Mollmann *et al.* described a foam-cushion face mask and a see-through operating table as a new setup for face protection and increase safety in the prone position.<sup>11</sup>

No previous case of direct pressure necrosis of the lip has been reported secondary to prone positioning. However, lip injury has been reported in a single case due to allergic contact dermatitis to the face, including the lips of a patient, who had become sensitised to the material of the flexible polyurethane foam applied to support the face during surgery.<sup>12</sup>



Figure 3a and 3b: Two views for the lip three months after plastic surgery.

## Conclusion

In conclusion, lip necrosis can occur if the head of the patient is improperly positioned for scoliosis surgery. Both the anaesthetist and the surgeon should work together to create proper positioning for the patient during the surgical procedure and always use the appropriate equipment for the patient's safety. The author recommends the use of a horse shoe head support in all cases undergoing surgery in the prone position and in scoliosis corrective surgeries in particular.

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