

Nerve injury associated with orthognathic surgery. Part 3: lingual, infraorbital, and optic nerves

N.M.H. McLeod^{a,*}, D.C. Bowe^b

^a Department of Oral & Maxillofacial Surgeon, Oxford University Hospitals NHS Trust, Headley Way, Oxford OX3 9DU

^b Department of Orthodontics, Worcester Royal Hospital, Charles Hasting Way, Worcester WR5 1DD

Accepted 26 January 2016

Available online 23 February 2016

Abstract

In the final paper of this 3-part series we review the incidence of injuries to the lingual, infraorbital, and optic nerves during orthognathic operations. We know of few published studies on the incidence of injuries to the lingual or infraorbital nerves, but in most cases they are thought to result from traction and are predominantly temporary. The incidence of permanent injury to the lingual nerve was 2/100 patients (95% CI 1 to 3/100) or 0/100 nerves (95% CI 0 to 1/100). The methods used to assess injury to the infraorbital nerve differed so it was not possible to calculate the incidence. Injuries to the optic nerve, although rare, have a considerable impact on the patients affected.

© 2016 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

Keywords: Orthognathic Surgery; Nerve injury

Introduction

In Part 1 of this series, we described the results of a survey to find out what consultant oral and maxillofacial (OMF) surgeons in the United Kingdom tell their patients about the prevalence of common nerve injuries before orthognathic operations, and reported on the incidence of injuries to cranial motor nerves.¹ In Part 2 we reported on injuries to the inferior alveolar nerve. In this final part we report less common injuries: those to the lingual, infraorbital, and optic nerves.²

Methods

We searched Medline and PubMed using the terms orthognathic surgery, maxillary osteotomy, mandibular osteotomy, complications, morbidity, and nerve injury. References were identified, and these and textbooks hand searched for further

examples. Searches were limited to papers in the English language. In the case of injuries to the lingual and infraorbital nerves, we selected case series that included at least 30 patients and gave details of the operation, duration of injury, and method of testing. Only case reports are presented on injury to the optic nerve, as they are rare. Short-term injury was taken to be one assessed within 6 weeks of operation. When the assessment was done after 12 months, the injury was defined as permanent.

Data were collected in a Microsoft Excel® spreadsheet, and statistical analysis was done with the help of StatsDirect® (StatsDirect Ltd, Altrincham, UK).

Results

Lingual nerve

Few studies that met the inclusion criteria described short-term injuries to the lingual nerve. Only 2 reported the incidence of short-term deficit (assessments in both were

* Corresponding author. Tel.: +01865 743102; fax: +01865 222040.
E-mail address: niall_mcleod@yahoo.co.uk (N.M.H. McLeod).

Table 1
Subjective assessment of long-term injury to the lingual nerve.

First author, year of publication, and reference	Follow up (years)	Patients				Nerves			
		Total	Affected patients	Incidence /100	95% CI	Total	Affected nerves	Incidence /100	95% CI
Coghlan 1986 ⁵	1	19	0	0	0 to 18	38	0	0	0 to 9
August 1998 ⁷	2	85	2	2	0 to 8	-	-	-	-
Jacks 1998 ³	>1	134	8	6	3 to 11	-	-	-	-
Bouwman 1995 ⁶	1	667	4	1	0 to 2	-	-	-	-
Al-Bishri 2004 ⁸	1	-	-	-	-	86	2	2	0 to 8
Becelli 2004 ⁴	1	-	-	-	-	482	0	0	0 to 1
Total		905	14	2	1 to 3	606	2	0	0 to 1

subjective) and included sufficient patients. Jacks et al used a questionnaire to ask patients about sensory deficit after mandibular osteotomy.³ They reported that in 134 patients, 26 (19.4%) noted some sensory changes. In 18 of the 26 (69.3%) it had recovered within one year. Becelli et al asked 241 patients who had bilateral SSO (482 sides) with bicortical scw fixation whether they had any deficit in the lingual nerve. Three patients reported problems at 1 month (prevalence of 1/100, 95% CI 0 to 2/100) but all had recovered within 6 months.⁴

Table 1 shows studies that reported long-term injuries to the lingual nerve.^{3–8} The overall incidence was 2/100 patients (95% CI 1 to 3/100) or 0/100 nerves (95% CI 0 to 1/100).

Infraorbital nerve

Few studies that met the inclusion criteria described short or long-term paraesthesia of the infraorbital nerve, and the different methods of testing made direct comparison impossible (Tables 2 and 3).^{9–12} Different objective assessments of short-term injury showed significant differences in incidence, with sharp-blunt discrimination being the most sensitive (incidence 75/100) and moving touch the least sensitive (8/100). It is not clear whether this was because of the susceptibility of the different nerve fibres to injury or the sensitivity

of the test to assess it. Schultze-Mosgau assessed injury to the nerve after 12 months using sharp-blunt discrimination and electromyography.¹⁰ There was no significant difference in the incidence of nerve injury between these 2 methods (p=0.25)

Posnick assessed patients objectively and subjectively after 12 months, and found reduced sensibility to 2-point discrimination postoperatively, although no patients reported loss of sensation.¹¹ Panula did not describe whether the injury was recorded objectively or subjectively so no further analysis of the results was possible.¹²

Optic nerve

Injuries to the optic nerve were reported as being temporary or permanent, and included partial or complete loss of vision (Table 4).^{13–18} Operations were not always described in detail, but all osteotomies were low-level Le Fort I. In 5 cases loss of vision was complete and permanent, while in 6 it recovered partially. Some patients could perceive light or finger movement only, and in others there was partial loss of visual field. Only 2 patients recovered completely. Retrobulbar haemorrhage was identified on postoperative imaging in 2 patients, and 4 had evidence of aberrant fractures extending to the orbital apex. In 2, hypoperfusion of the optic nerve

Table 2
Objective assessment of short-term injury to the infraorbital nerve 4 weeks postoperatively.

First author, year of publication, and reference	Test	No. of nerves	Affected nerves	Incidence /100	95% CI
Karas 1990 ⁹	Static touch	26	8	31	14 to 52
	Moving touch	26	2	8	1 to 25
Schultze-Mosgau 2001 ¹⁰	Sharp-blunt	36	27	75	58 to 88
	Electromyography	36	18	50	33 to 67

Table 3
Long-term injury to the infraorbital nerve assessed objectively (and subjectively).

First author, year of publication, and reference	Test	No. of nerves	Affected nerves	Incidence /100	95% CI
Schultze-Mosgau 2001 ¹⁰	Sharp-blunt	36	2	6	1 to 19
	Electromyography	36	0	0	0 to 10
Posnick 1996 ¹¹	Subjective + objective	118	0	0	0 to 3
Panula 2001 ¹²	Subjective?	193	5	3	1 to 6

Download English Version:

<https://daneshyari.com/en/article/3122982>

Download Persian Version:

<https://daneshyari.com/article/3122982>

[Daneshyari.com](https://daneshyari.com)