Dehiscence of Facial Canal

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ABSTRACT

Introduction: Physiological presence of fetal dehiscence of the facial canal has been observed. As early as 1949, Gaillard (1949) regarded such natural absence as a “not uncommon anomaly”. Henner & Buckingham (1956) listed dehiscence among the severe abnormalities encountered in otological surgery. Excellent descriptions usually with a report on evidence have been provided by Derlacki (1957), Shambaugh (1980); Kodres and Buckingham (1957) and Caithorne (1969).

Materials & Methods: 30 fetuses were used to expose 60 fetal temporal bones. In these the petrous part was dissected, decalcified and serial sections were taken.

Observation: In 6 specimens the wall of the facial canal was found to be deficient in the medial wall of the middle ear. The deficiency was varying from a minimal area to a wider area.

Discussion:

According to Wright (1966), dehiscences are certainly present in 4% of cases. This is somewhat less than what is cited by Ketel (1965) who found 57% dehiscences out of 211 cases. Kaplan et al (1960, 1984) have suggested the persistence of the aperture for the stapedial artery as a possible cause for dehiscence, which itself disappears at the 10th week. Abing et al (1987) have stressed the possibility of middle ear infections in early infancy as a cause of dehiscence. The regions of the facial canal which are covered by intramembranous bone are the most susceptible areas of dehiscence. The dehiscence of the facial canal plays an important part in the development of facial nerve palsy from acute otitis media (Henderson, 1989).

Baxter’s (1971) observation revealed in incidence of dehiscence in 55%, 91% of dehiscence was located in the tympanic segment & 9% in the mastoid portion. He defined dehiscence as a gap in the canal wall measuring 0.4mm or more. The majority of the gaps were found in the oval window region. A gap in the canal wall measuring 0.4mm or more. The majority of the gaps were found in the oval window region. A gap in the canal wall measuring 0.4mm or more. The majority of the gaps were found in the oval window region. A gap in the canal wall measuring 0.4mm or more. The majority of the gaps were found in the oval window region. The regions of the facial canal which are covered by intramembranous bone are the most susceptible area of dehiscence.

The highest incidence of exposed facial nerve has been reported to be 30-35% during surgery for middle ear Cholesteatoma (Lin et al 2004; Selesnick et al 2001; Ozbek et al 2009). Majority of those were found to be in revised cases and at the tympanic seg-
ments since it was in the way of extension of the Cholesteatoma (Moody et al 2007; Magliulo et al 2011; Kim et al 2008; Bayazit et al 2002).

In the present study dehiscence was observed in 5% . and all were observed in the tympanic segment of the Facial canal (100%)

**Conclusion:**
In the middle ear congenital abnormalities of the facial nerve such as dehiscence of the wall or, abnormal course of the facial nerve, the nerve is at danger in surgical procedures such as stapedectomy for otosclerosis, Myringotomy and removal of foreign body (chorda tympani nerve also may be involved).

If there is dehiscence of the facial canal in the middle ear there can be unexpected, post operative facial nerve complications. The nerve is also involved in the middle ear infections. Middle ear being a vulnerable part in the course of the facial nerve, the position, the dimension and the integrity of the canal in which it lies were observed in the region of the middle ear.

Fig: 35 Photomicrograph showing the dehiscence of the wall of the facial canal in the medial wall of the middle ear in fetus no. 1 - 2.5X, H&E.
D- Dehiscent part of the wall.

Fig: 36 Photomicrograph showing the dehiscence of the wall of the facial canal in the medial wall of the middle ear in fetus no. 2 - 2.5X, H&E.
D- Dehiscent part of the wall.

Fig: 37 Photomicrograph showing the dehiscence of the wall of the facial canal in the medial wall of the middle ear in fetus no. 3 - 2.5X, H&E.
D- Dehiscent part of the wall.

Fig: 38 Photomicrograph showing the dehiscence of the wall of the facial canal in the medial wall of the middle ear in fetus no. 4 - 2.5X, H&E.
D- Dehiscent part of the wall.

Fig: 39 Photomicrograph showing the dehiscence of the wall of the facial canal in the medial wall of the middle ear in fetus no. 5 - 2.5X, H&E.
D- Dehiscent part of the wall.

Fig: 40 Photomicrograph showing the dehiscence of the wall of the facial canal in the medial wall of the middle ear in fetus no. 6 - 2.5X, H&E.
D- Dehiscent part of the wall.

Fig: 41. Photomicrograph showing the facial nerve being split into two bundles in the medial wall of the middle ear. 2.5X, H&E.
FN – Facial nerve
Fig: 42. Photomicrograph showing the facial nerve being split into two bundles in the medial wall of the middle ear. 2.5X, Toluidine blue.
FN – Facial nerve

Fig: 43. Photomicrograph showing the facial nerve in the facial canal with blood vessels supplying it. 25X, H&E.
BV – Blood vessels; FC – Facial canal; FN – Facial nerve

REFERENCE