

Definition: **Bell's palsy** from *The Chambers Dictionary*

a sudden paralysis of the muscles of one side of the face, caused by damage to the facial nerve, which results in distortion of the features and may affect the senses of hearing and taste. [Sir Charles *Bell* (1774–1842), Scottish surgeon]

Summary Article: **Bell's Palsy**

From *The Encyclopedia of Neuropsychological Disorders*

DESCRIPTION

Bell's palsy represents an acute lower motor neuron condition involving peripheral and transient paralysis of the facial nerve (cranial nerve VII), unilaterally. Bell's palsy was named after the Scottish surgeon and anatomist, Charles Bell, during the 19th century (Carmichael, 1926). The etiology of Bell's palsy remains unclear, though viral infections, most commonly herpes simplex virus Type 1 (HSV-1), are often considered as a potential cause. As such, Bell's palsy is believed to occur due to edema and ischemia involving compression of the facial nerve passing through the fallopian canal, the bony passage in the temporal bone through which the cranial nerve passes (Peitersen, 2002). Although some patients' symptoms completely remit, a small percentage of patients experience ongoing sequelae (Minnerop et al., 2008). In addition to facial paralysis, sense of taste, hyperacusis (abnormally acute hearing due to neural irritation), tear, and saliva production might also be problematic in these patients.

The incidence of Bell's palsy is thought to be 20–30: 100,000 annually (Minnerop et al., 2008; Rowlands, Hooper, Hughes, & Burney, 2002), occurring equally between genders and sides of the face. Age distribution of Bell's palsy suggests that individuals between the ages of 15 and 45 are more likely to be affected and that the occurrence for those under 15 and over 60 is quite low. Bell's palsy is most common during the second, third, and fourth decades of life (Peitersen, 2002).

NEUROPATHOLOGY/PATHOPHYSIOLOGY

Occasional familial incidence of Bell's palsy has been reported within the literature, though the precise genetic link remains uncertain and the evidence for familial link remains debatable (Rowlands et al., 2002). Although this has been noted, in general, Bell's palsy is viewed as idiopathic in nature as no underlying cause is identified following clinical workup in 60% to 75% of cases (Bauer & Coker, 1996). However, the literature has demonstrated that herpes simplex infection is the most commonly reported cause. In addition, pregnant women as well as patients with diabetes mellitus and/or multiple sclerosis have been found to demonstrate heightened risk of the presentation (Brackman & Fetterman, 2007).

Bell's palsy occurs as a result of infringement on the seventh cranial nerve, either due to edema or ischemia at the point of the meatal foramen, at the beginning of the labyrinthine segment (Brackman & Fetterman, 2007).

NEUROPSYCHOLOGICAL/CLINICAL PRESENTATION

No neuropsychological findings have been reported within the literature as the presentation is typically sudden in onset and transient with full recovery commonly being noted. In fact, 85% of patients will

spontaneously improve within 3 weeks of onset, even without treatment; the remaining generally improve within 3–6 months (Adour, Byl, Hilsinger, Kahn, & Sheldon, 1978; Peitersen, 2002). Clinically, Bell's palsy, as suggested, is primarily characterized by peripheral cranial nerve VIII dysfunction leading to a sudden onset of facial weakness with most severe paralysis being seen several days later. This can be seen in conjunction with numbness or pain of the ear, tongue, and/or face, reduced ipsilateral tear and/or saliva production, impeded acoustic reflex, and irritation of the chorda tympani nerve (May & Klein, 1991).

The facial palsy involved with Bell's palsy may present as complete or partial paralysis. Those with partial paralysis have a greater chance of complete recovery (94%), though a majority of all patients regain full recovery. Peitersen (2002), in his study of more than 1,700 patients, suggested that 71% experienced full recovery during the first 3 weeks. Furthermore, age appears to be a risk factor for incomplete recovery of facial function, as the likelihood of full recovery declines with age; above 45 years of age, the chances for full recovery diminish significantly. Rate of remission of symptoms is another parameter influencing recovery with patients showing signs of remission early on tending to have better outcomes (Peitersen, 2002). Another factor that appears to influence recovery involves auricular pain; those complaining of auricular pain have a poor prognosis for complete recovery than those without (Peitersen, 2002). A number of patients may experience recurrence of facial palsy on the same or opposite side of the face. Finally, increased incidence of Bell's palsy and poorer outcomes have been associated with patients having hypertension and diabetes mellitus, though this link remains controversial.

DIAGNOSIS

Bell's palsy is idiopathic and diagnosis is based on exclusionary information. Diagnosis of Bell's palsy is difficult due to the sudden onset and often spontaneous and complete recovery of symptoms reported in a majority of patients. Bell's palsy is the most common cause of peripheral facial palsy, though certainly other causes should be considered (e.g., focal tumor, stroke, Lyme disease) with monosymptomatic presentation required for diagnosis. Thorough examination including cranial nerve and neurological evaluations along with continued follow-up are essential. The presence of antibodies within the cerebrospinal spinal fluid and serum examination (e.g., Epstein-Barr virus, HSV-1, mumps, measles, etc.) is another method (Minnerop et al., 2008). Because a link between hypertension and diabetes mellitus is not yet fully understood, glucose tolerance and monitoring of blood pressure should be established in patients identified as having Bell's palsy.

TREATMENT

Corticosteroids as well as anti-viral and anti-inflammatory agents are among the preferred treatments for facial nerve paralysis to reduce swelling and further degeneration of the facial nerve and in rare cases surgical intervention for decompression (Engström, Jonsson, Grindlund, & Stålberg, 1998), though the efficacy of the aforementioned treatments remains controversial. Surgical intervention is only reserved for those who do not have good functional recovery and involves decompression of the entire infratemporal facial nerve by taking both a middle cranial fossa and a transmastoid approach (Friedman, 2000; Gantz, Runbinstein, Gidley, & Woodworth, 1999).

Facial exercises are often recommended for patients with Bell's palsy, though the efficacy of these treatments has not been clear (Peitersen, 2002). If the patient experiences difficulty closing the affected eye, efforts to protect the eye from irritants and maintain moisture within the affected eye

are important. Early intervention is preferred and associated with better outcomes. Finally, anxiety has been commonly reported in Bell's palsy (Peitersen, 2002), and treatment of this may be warranted in some cases.

Bibliography

- Adour, K. K.; Byl, F. M.; Hilsinger, R. L. Jr.; Kahn, Z. M.; Sheldon, M. I., (1978). The true nature of Bell's palsy: Analysis of 1000 consecutive patients. *Laryngoscope*, 88, 787-801.
- Bauer, C. A.; Coker, N. J. (1996). Update on facial nerve disorders. *Otolaryngological Clinics of North America*, 29, 3, 445-454.
- Brackmann, D. E.; Fetterman, B. L. (2007). Cranial nerve VII: Facial nerve. In Goetz, C. G. (Ed.) *Textbook of clinical neurology* (3rd ed.,pp. 185-198). Saunders Elsevier Philadelphia, PA.
- Carmichael, L. (1926). Sir Charles Bell: A contribution to the history of physiological psychology. *Psychological Review*, 33, 188-217.
- Engström, M.; Jonsson, L.; Grindlund, M.; Stålberg, E. (1998). House-Brackmann and Yanagihara grading scores in relation to electroneurographic results in the time course of Bell's palsy. *Acta Otolaryngologica*, 118, 783-789.
- Friedman, R. A. (2000). The surgical management of Bell's palsy: A review. *American Journal of Otolaryngology*, 21, 1, 139-144.
- Gantz, B. J.; Rubinstein, J. T.; Gidley, P.; Woodworth, G. G. (1999). Surgical management of Bell's palsy. *Laryngoscope*, 109, 1177-1188.
- May, M.; Klein, S. R. (1991). Differential diagnosis of facial nerve palsy. *Otolaryngological Clinics of North America*, 24, 3, 613-645.
- Minnerop, M.; Herbst, M.; Fimmers, R.; Matz, B. M.; Klockgether, T.; Wüllner, U. (2008). Bell's palsy: Combined treatment of famciclovir and prednisone is superior to prednisone alone. *Journal of Neurology*, 255, 1176-1730.
- Peitersen, E. (2002). Bell's palsy: The spontaneous course of 2,500 peripheral facial nerve palsies of different etiologies. *Acta Otolaryngologica*, 549, 4-30.
- Rowlands, S.; Hooper, R.; Hughes, R.; Burney, P. (2002). The epidemiology and treatment of Bell's palsy in the UK. *European Journal of Neurology*, 9, 63-67.

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Pagoria, M. R., & Noggle, C. A. (2011). Bell's palsy. In C. Noggle, *The encyclopedia of neuropsychological disorders*. New York, NY: Springer Publishing Company. Retrieved from https://search.credoreference.com/content/topic/bell_s_palsy



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Pagoria, M. R., & Noggle, C. A. (2011). Bell's palsy. In C. Noggle, *The encyclopedia of neuropsychological disorders*. New York, NY: Springer Publishing Company. Retrieved from https://search.credoreference.com/content/topic/bell_s_palsy

Chicago

Pagoria, Michelle R., and Chad A. Noggle. "Bell's Palsy." In *The Encyclopedia of Neuropsychological Disorders*, by Chad Noggle. Springer Publishing Company, 2011. https://search.credoreference.com/content/topic/bell_s_palsy

Harvard

Pagoria, M.R. and Noggle, C.A. (2011). Bell's palsy. In C. Noggle, *The encyclopedia of neuropsychological disorders*. [Online]. New York: Springer Publishing Company. Available from: https://search.credoreference.com/content/topic/bell_s_palsy [Accessed 15 October 2019].

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Pagoria, Michelle R., and Chad A. Noggle. "Bell's Palsy." *The Encyclopedia of Neuropsychological Disorders*, Chad Noggle, Springer Publishing Company, 1st edition, 2011. *Credo Reference*, https://search.credoreference.com/content/topic/bell_s_palsy. Accessed 15 Oct. 2019.