Memory and Suggestibility with Head Trauma

Quote from Florid Confabulation Following Brain Injury

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Recovery After Traumatic Brain Injury (Institute for Research in Behavioral Neuroscience Series) (pp. 149-150). Taylor and Francis.

Confabulation, according to Berlyne (1972), is a falsification of memory occurring in clear consciousness in association with an organically derived amnesia. The neuropsychological mechanism of confabulation is not known. Factors such as suggestibility (Pick, 1905; cited in Berlyne, 1972), improper sense of chronological order (Van der Horst, 1932; cited in Berlyne, 1972), vivid daydreaming and difficulty distinguishing fantasy from reality (Whitty & Lewin, 1957), filling amnestic gaps (Barbizet, 1963), and abnormal psychological reaction (Weinstein & Lyerly, 1968) have been implicated in the production of confabulations.

It has been suggested that there are two types of confabulation: (a) florid, fantastic, or spontaneous, unprovoked fabrications, sometimes elaborate and bizarre; or (b) momentary or provoked, filling in of memory gaps (Berlyne, 1972; Kapur & Coughlan, 1980; Kopelman, 1987). Several investigators have pointed to a strong association between confabulation and frontal lobe dysfunction (DeLuca & Cicerone 1991; Kapur & Coughlan, 1980; Luria, 1980; Stuss, Alexander, Lieberman, & Levine, 1978). Confabulation was found to be strongly related to an inability to withhold answers, monitor responses, and provide verbal self-regulation (Mercer, Wapner, Gardner, & Benson, 1977), all of which are characteristic of frontal lobe dysfunction. It has been hypothesized that spontaneous confabulation is related to a greater degree of frontal dysfunction than is momentary confabulation (Kapur & Coughlan, 1980; Kopelman, 1987). However, this hypothesis does not explain satisfactorily the large variation in content and form of florid confabulation—specifically, why some patients show delusional elements in their confabulations and others do not. The fact that confabulation is often associated with reduplicative and misidentification syndromes was noted by Weinstein and Lyerly (1968).

Indeed, a close look at described case reports reveals that, in addition to an intrusional component consisting of an unchecked flow of thoughts, memories, and fantasies, a delusional element was frequently present. This included grandiose ideas (Berlyne, 1972; Damasio, Graff-Radford, Eslinger, Damasio, & Kassell, 1985), misidentification delusion of persons (Capgras' syndrome; Alexander, Stuss, & Benson, 1979), misidentification delusion of places (reduplicative paramnesia; Benson, Gardner, & Meadows, 1976; Ruff & Volpe, 1981), and dreamy state with false sense of familiarity (déjà vu; Staton, Brumback, & Wilson, 1982).

Because organic delusions and dreamy states have frequently been associated with temporal lobe disease (Freeman, 1980), it appears natural to question whether temporal lobes play a role in the production of confabulation. To answer this question, a retrospective study of five patients with florid confabulation was undertaken.

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Abstracts regarding Memory, Suggestibility and Head Trauma

'Capgras syndrome: A reduplicative phenomenon': Commentary.
Alexander, Michael P. and Stuss, Donald T.
Journal of Psychosomatic Research, Vol 44(6), Jun, 1998. Special Issue: Neuropsychiatry past and future. pp. 637-639.
Abstract:

Comments on the article by M. P. Alexander et al (see record 1980-23394-001) regarding Capgras syndrome. The authors, who were 2 of the 3 original authors of the Alexander et al article, chose to comment on this study because the study has been viewed as a classical article in the field of neuropsychiatry. M. P. Alexander and D. T. Stuss chose this study as their contribution to the field of neuropsychiatry for 4 reasons: (1) the work has been cited over 100 times, indicating considerable influence upon the scientific and clinical thinking of others; (2) the study exemplifies one important route that the early development of neuropsychiatry followed; (3) the environment was right for such a contribution; and (4) the evaluation of the patient in the study and attempts to understand his behavior in neurologic terms had a major influence on the authors' subsequent interests and careers.

Defect of memorizing of hippocampal-mammillary origin: a review.
Barbizet, J.
J Neurol Neurosurg Psychiatry. 1963 Apr;26(2):127-35.
Abstract:

The history of 'amnesie de memoration' has evolved through three stages. The first, a clinical one, started in 1887 with Korsakoffs description of a morbid association characterized by two basic criteria. These were, first, a psychological disorder associated with degenerative polyneuritis, and secondly a mental syndrome which included a special form of amnesia. This syndrome captured the attention of psychiatrists like Seglas (1895), Regis (1923), and Dupre (1903) who looked on the memory disorder as a mental aberration and stressed the interest of the psycho-polyneuritis syndrome, the clinical actuality of which had been fully accepted. However, the semeiotic significance of the amnesic syndrome described by Korsakoff was not overlooked by authors like Bonhoeffer (1904) in Germany and Chaslin (1895; 1912) in France. As pointed out by Angelergues (1958), Chaslin must be praised for emphasizing the importance of Korsakoff's mental syndrome which he was to define as a symptomatic triad of amnesia, fabrication, and disorientation.

Jean Delay, in his book on disorders of memory (1942), directed interest to the type of amnesia, and his thorough analysis led him to discard the conventional expression of 'fixation amnesia' and to adopt that of 'amnesie de me'moration' (defect of memorizing). A further stage in the elucidation of this type of amnesia had been started a few years earlier with the work of Gamper (1928), who insisted on the role of the mammillary bodies, and this has developed further through the more recent works of Scoville and Milner (1957) and of Penfield and Milner (1958) on the role of the gyri hippocampi. These studies now lead to the third stage (also made possible by the present development of cybernetic machines with memory capabilities), the study of remembering in normal man. We know that remembering involves memorizing, retention, and recalling, and by casting a new light on the first of these three, a study of pathological conditions may enable us to analyse better the processes which go to constitute the complex mental activity referred to as memory.

Reduplicative paramnesia
D. Frank Benson, Howard Gardner, John C. Meadows
Neurology Feb 1976, 26 (2) 147; DOI: 10.1212/WNL.26.2.147
Abstract:

A striking behavioral abnormality is described in three individuals who had had severe head trauma. At a point when general amnestic capabilities had returned to a near normal level, the patients persistently relocated the hospital at another geographical site, even in the face of compelling counter-evidence. The strong parallels in the etiology and course of the three cases justify the positing of a syndrome, here termed reduplicative paramnesia. A neuropsychologic analysis of the disorder stresses the cognitive operations entailed in geographical localization and confabulation. Clinical-pathologic considerations underline the role of right hemisphere and frontal lobe structures in the syndrome.

Confabulation.
Berlyne, N.. Oldham & District General Hosp., England
The British Journal of Psychiatry, Vol. 120(554), Jan, 1972. pp. 31-39.
Abstract:

Reviews the concept of confabulation and its uses in psychiatry. Numerous interpretations of it are cited in the literature. Description of types of confabulation in Korsakov syndrome and dementia suggests that the proper definition should limit the included falsifications of memory to those occurring in clear consciousness in association with an organically derived amnesia. Factors related to the emergence of confabulation, in addition to defective recent memory, include possible paranoid features in a sensitive personality and an element of wish fulfillment in the fantastic confabulation of organic brain disease.

Amnesia following basal forebrain lesions.
Damasio, Antonio R., et al.
Archives of Neurology, Vol 42(3), Mar, 1985. pp. 263-271.
Abstract:

Describes 5 patients with basal forebrain lesions who suffered from a particular type of amnesia (in both anterograde and retrograde compartments). Fundamental behavioral characteristics of Ss are detailed, and a common anatomical denominator among Ss is identified. It is hypothesized that Ss' amnesia resulted from interference with medial temporal function in the hippocampal formation proper, amygdala, and parahippocampal gyrus caused by the basal forebrain lesions.

Confabulation following aneurysm of the anterior communicating artery.
DeLuca, John and Cicerone, Keith D.
Cortex: A Journal Devoted to the Study of the Nervous System and Behavior, Vol 27(3), Sep, 1991. pp. 417-423.
Abstract:

Nine Ss (aged 33–61 yrs) with aneurysms of the anterior communicating artery (ACoA) and 17 Ss (aged 21–69 yrs) with other intracranial hemorrhages (ICHs) were evaluated for confabulatory responses under 2 naturally occurring conditions: (1) when Ss were not oriented to person, place, month, and year and (2) when Ss were fully oriented. Confabulation was observed in all 9 ACoA Ss both during disoriented and oriented periods. In contrast, 7 of the other ICH Ss showed signs of confabulation while disoriented, whereas only 1 continued to display confabulatory tendencies while fully oriented. Confabulation was also more severe in the ACoA group. Data suggest that the confabulation observed in the other ICH group may be secondary to an acute confusional state, while the prolonged

confabulation in ACoA patients may be a manifestation of a more primary cerebral disorder.

Experimental studies of suggestibility in mental disturbances.
Ingvarsson, C. and Lindberg, B.
Acta Psychiatrica et Neurologica (KjøBenhavn), 10, 1935. pp. 77-85.
Abstract:

While there has been a considerable amount of research on suggestion during childhood by Binet, Kosog, Lippman, Otis, and others, little has been done concerning the degree of suggestibility in various categories of people and under varying conditions. By using certain adaptations of the Binet-Henri smelling suggestion test on a heterogeneous group of 136 nervous patients, the following results were obtained: of 130 cases, 7% of asthenics reacted to suggestion, 20% of schizophrenics, 29% of manic-depressives, 48% of hysterics, 64% of organic brain injury cases, and 86% of intellectually inferior patients. In another group of patients examined, 50 from the medical department and 50 from the surgical department, the number of patients reacting to suggestion amounted to 27%, 25% males and 29% females.

Reduplicative paramnesia: Possible anatomical and neuropsychological mechanisms.
Kapur, Narinder, et al.
Journal of Neurology, Neurosurgery & Psychiatry, Vol 51(4), Apr, 1988. pp. 579-581.
Abstract:

Presents the case of a 72-yr-old right-handed male who presented with reduplicative paramnesia following a vascular lesion in the right frontal region. Neuropsychological examination revealed significant memory impairment, perseveration on a problem-solving task, and left-sided inattention. Recovery from the paramnesic episode was accompanied by selective resolution of the original cognitive deficits.

Two types of confabulation.
Kopelman, Michael D.
Journal of Neurology, Neurosurgery & Psychiatry, Vol 50(11), Nov, 1987. pp. 1482-1487.
Abstract:

Examined examples of confabulation in 16 Korsakoff patients, 16 Alzheimer-type dementia patients, and 17 healthy adult controls. Instances of provoked confabulation given by the Korsakoff and Alzheimer Ss in story recall were compared with those produced by the healthy Ss at a prolonged retention interval. It is argued that there may be 2 types of confabulation: spontaneous confabulation, which may result from the superimposition of frontal dysfunction on an organic amnesia; and provoked confabulation, which may reflect a normal response to a faulty memory.

A Study of Confabulation
Brian Mercer; Wendy Wapner; Howard Gardner, PhD; et al D. Frank Benson, MD
Arch Neurol. 1977;34(7):429-433. doi:10.1001/archneur.1977.00500190063009
Abstract

Confabulation consequent to organic amnesia is a well-described clinical finding. A number of plausible theories of confabulation have been proposed, but the various claims and counterclaims have not been systematically tested. A standardized test battery that included four different kinds of questions plus measures of suggestibility and the tendency to utilize external cues was administered to ten amnesic patients who demonstrated varying

degrees of confabulation. One additional patient, whose clinical condition changed dramatically during his hospital course, received the battery on a number of occasions.

Differences among patients were found in overall performance, degree of confabulation, and ability to use cues. Hypothesized relationships between confabulation and suggestibility, degree of memory disorder, and degree of disorientation were not confirmed. However, confabulation proved to be strongly related to the inability to withhold answers, to monitor one's own responses, and to provide verbal self-corrections. These results suggest a tentative model of the process of confabulation as well as a number of useful clinical signs indicating recovery from amnesia.

Reduplicative paramnesia: A disconnection syndrome of memory.
Staton, R. Dennis, et al.
Cortex: A Journal Devoted to the Study of the Nervous System and Behavior, Vol 18(1), Apr, 1982. pp. 23-35.
Abstract:

Describes a case of posttraumatic Capgras syndrome acquired by a 23-yr-old male after a traffic accident. S experienced duplications in all 3 spheres of orientation (time, place, and person). The authors postulate that these duplications are the result of a disconnection of new memory registration from past memory stores. S was unable to integrate present cues with premorbid experience. A deep lesion at the right posterior hippocampus and temporo-parieto-occipital junction is suggested as the site of this postulated primary memory disconnection, based on neuropsychological testing and the results of computerized axial tomographic scanning. This right temporal atrophy and memory disconnection appears to have also induced immature personality changes.

An extraordinary form of confabulation.
Stuss, Donald T., et al.
Neurology, Vol 28(1), Nov, 1978. pp. 1166-1172.
Abstract:

Describes 5 patients with spontaneous, persistent confabulation. While the basis of confabulation in general is not known, the evidence from this group of patients with spectacular, impulsive, and spontaneous confabulation suggests a marked deficit in frontal function, superimposed upon a basic defect in memory, as a possible mechanism.

Confabulation following brain injury: Its analogues and sequelae.
Weinstein, Edwin A. and Lyerly, Olga G.
Archives of General Psychiatry, 18(3), 1968. pp. 348-354.
Abstract:

The incidence and content of confabulations and their analogs and sequelae were studied in 101 cases of acute brain injury, emphasizing language as a mode of adaptation to stress. While confabulation is ostensibly the fictitious narration of past events, it is also a condensed symbolic representation of current problems and relationships. The content is determined by the nature of the disability and those aspects of past experience that have been significant sources of identity. Analogous language patterns include anecdotes, idioms, colloquialisms, cliches, humor, and the placing of a referential designation of disability into other symbol contexts. In the course of recovery, s may use the same symbol or symbol category of the confabulation in the emotional relationships and identification with real people through which he continues to represent his problems. The role of the socially organized patterning mechanisms of language in adaptation to stress is discussed.