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REVIEW

FEAR OF FLYING: AN OVERVIEW

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Flying gives the aviator a sense of power and control. Aviators challenge their own skills and test the physical limitations of the plane. They must maintain the balance between fear and joy, sacrifice and love, and risks and rewards of flying in order to continue to fly without reservation. Flying is dangerous. The danger is both real and symbolic, generating fears and anxiety. Interpretation of fear of flying spans from the psychoanalytic-endogenous on one side to the behaviouristic-exogenous on the other side. Unless strictly understood, both models should be taken to consider the interaction between the endogenous and exogenous factors. The therapy of the fear of flying is based on the correlation between the symptoms and underlying dynamics. The prognosis depends on the ability to work through those psychodynamic conflicts. Aviators may continue to fly if the symptoms are minor and the motivation to resolve conflicts is high.

Key words:
anxiety, aviator, break-off phenomenon

DANGER OF FLYING

Flying gives the aviator a sense of power and control. Aviators challenge their own skills and test the physical limitations of the plane. They must maintain the balance between fear and joy, sacrifice and love, and risks and rewards of flying in order to continue to fly without reservation.

As we already know, flying is dangerous. The danger is both real and symbolic, generating fears and anxiety. Fear is an emotional manifestation, generally related to neurovegetative manifestations triggered by real and outer danger. Fear is healthy and performs a kind of adaptive function telling the subject where the physical or psychic danger is. Of course, seeing a situation as dangerous is mainly subjective.

By contrast, anxiety has a mysterious, unconscious origin. It may alter the personality because the ego does not know who and where the opponent is. Anxiety is

provoked by the unconscious stimulation of early normal fears inherent to the subject's childhood (1).

Those who do not (or cannot) admit to fear use defence mechanisms to reduce the fear. The use of defence mechanisms is often adaptive. Aviators, for example, use such mechanisms as denial, repression or suppression, psychophysiological habituation, rationalization, or identification. Sometimes »latent« fear of flying is manifested when maladaptive defences outweigh adaptive defence mechanisms. Such maladaptive defences are for example reaction formation, evasion, displacement, isolation, projection, and so on (2).

Fear of flying is rarely reported by the aviator; instead, it is observed by others. The onset and the symptoms and signs are insidious and progressive. Often the fear manifests itself through vague and multiple somatic symptoms, inconsistent or unprofessional behaviour, or dysfunctional personal relationships. In less obvious cases an aviator says that he would be willing to fly, if only he were able to concentrate, relax, get some sleep, or overcome some other manifestation of the inner turmoil. Depending on the aviator's personality, one observes that dissociative symptoms (sleepwalking, amnesia), restlessness, substance abuse (drugs, alcohol, and food), emotional regression, psychosomatic disorders (ulcers, gastritis, colitis, headaches, and dermatitis), or conversion (hearing loss, back pain, and weakness) may also indicate the underlying anxiety (3).

Precipitating events in fear of flying can be:

– Professional: non aviation job stress (multiple collateral duties, personnel management, fatigue, etc.);

– Personal: family or marital problems;

– Psychological: initial defence mechanisms may become suboptimal or maladaptive when anxiety or depression resulting from stressors of aviation become overwhelming;

– Type of mission such as low level flight, night flight, carrier operations, and bombing may begin to challenge the aviator's values, aptitude for military aviation, or physical or psychological stamina (4).

INTERPRETATIONS AND ELABORATIONS

Fear of flying calls for psychoanalytical-endogenous interpretation on one side and behaviouristic-exogenous interpretation on the other side. *Gelly* (5) suggested two models of the fear of flying. Flight phobia involves a phobic nucleus that precedes the manifest clinical syndrome. This type of reaction can be attributed to the psychoanalytic model of fear of flying. By contrast, the behaviouristic model of the fear of flying puts the stress on the exogenous anxiety factors. According to this model, the fear of flying is habitual, »the symptom is the whole disease«. The neurotic nucleus is completely ignored. Conditioning provokes the fear or phobia whereas counterconditioning brings to the retreat of clinical manifestations. Unless strictly understood, both models should be taken to be able to consider the interaction between the endogenous and exogenous factors (6).

Fear of flying

Leimann Patt (7) distinguish two anxiety syndromes in an aircrew: fear of flying and flight phobia. Fear of flying is the most frequent syndrome. Usually, it is not incapacitating for flying activities, unless it becomes unusually severe. The syndrome involves increased anxiety or uneasiness and a sensation of insecurity under some flying conditions (e.g., instrument or blind flying in bad weather). It generally originates in association with a recent or remote traumatic episode (such as a close call, rough landing, a »buddy's accident«), undetected pre-existing disorders, or recent changes in life with libidinal readjustment. Cabin crews are usually more affected by the syndrome than the flight crews partly because the screening for cabin crews does not necessarily observe strict medical and aeronautical criteria, that is, the crewman's motivation and the quality of defence mechanisms are generally inferior to the pilot's, emergency procedure instructions (e.g. sudden decompression, hijacking) are insufficient, and the cabin crew must remain passive during flight emergencies. When a subject confesses the fear of flying to his examiner, he or she is asking to be grounded for a short period of time and we have to accept his or her decision. If not, the subject may acquire a more severe and irreversible pathology.

When a frightened crewman keeps on flying for a while, his or her defence system may suffer a damage that triggers latent second-line defence mechanisms. Fear may then turn to phobia, particularly if inadequate defence mechanisms such as reaction formation, displacement, and isolation are involved.

Flight phobia

Flight phobia occurs when flying or environmental stress debilitate denial and rationalization and when unsuitable defence mechanisms are strongly present. It will not occur if these elements are absent. In phobia, anxiety is the central component; not free-floating as in panic disorder, but attached to a specific object, activity, or situation. The anxiety is not justified by the stimulus; it is out of proportion to the real situation and the sufferers are completely aware that their reactions are irrational (8). Sometimes the phobia is partial and the flight itself is not the phobic element, but only some types of aircrafts or flights.

Anderson (9), a WWI Royal Air Force flight surgeon, termed »aeroneurosis« a variety of symptoms culminating in the reluctance to fly. Psychic trauma (induced by seeing, experiencing, or hearing plane accidents), chronic association with the real dangers of aviation, and fatigue precipitated by chronic health and emotional problems were all viewed as precipitants of aeroneurosis. *Anderson* notes that aeroneurosis must be discriminated from ordinary neuroses and concluded that, unlike ordinary neuroses, aeroneurosis is best treated by prevention or rest because »psychoanalytic manoeuvres« seem to bring an obvious benefit.

Davis (10) proposed three groups of men suffering anxiety that prevents them to fly. The first are the men who are physically exhausted from flying and suffer an acute anxiety with a phobic object directly related to flying. The second are the men whose symptoms of anxiety also arise in association with flying, but whose underlying personalities predispose them to neurotic problems regardless of the general environment. The third is the group of prepsychotic pilots. Davis regarded the former two groups amenable to psychotherapy of different length and intensity, but the last one

he deemed untreatable (of course, from a flight surgeon's point of view, not from the psychiatrist's).

Bond (11) also reports that the fliers he treated fall into three recognizable groups:

1) fliers with childhood predispositions to phobic behaviour that result from unresolved Oedipal conflicts; their phobic symptoms grew and (if untreated) eventually rendered them unable to perform their duties (we know that the roots of phobia mostly originate from the Oedipal phase of the child's development, although in some cases the pre-genital needs come first);

2) fliers who exhibited a more restricted phobic pattern. Bond, however, noted that one could find a neurotic pattern in anyone if one looked deeply enough. The reluctance of this group to fly was precipitated by more personal and intense circumstances than in the first group;

3) fliers who were simply physically exhausted, and treatable with a week's rest.

Eggertsen (12) emphasizes the symbolism of flight. He offers an existential formulation of the motivation to fly and suggests a pervasive (but usually controlled) suicidal dynamic in fliers. *Morgenstern* (13) identifies the counterphobic motivation to fly as a predisposition for subsequent fear of flying.

Lifton (14) distinguishes groups of anxious, phobic, and somatic patients. *Gatto* (15) notes that obsessive concern about plane function, somatisation, misbehaviour, phobic symptoms, neurosis, pseudo- and true psychoses are all processes that lead to the diagnosis of the fear of flying. He hypothesises that these symptoms arise from intra-psychic conflict based on instinctual needs in opposition to the superego forces compounded by external reality.

Temperau (16) saw pilots progressing through a series of attitudinal changes during their career. He divided those changes in five phases: 1) the initial thrill, 2) the hot pilot, 3) the airplane driver, 4) the emergence of anxiety, and 5) defence formation.

These phases are similar to those identified by *Reinhardt* (17). According to him, the stages of an aviator's career are: 1) glamorous years (age 22–24 years), 2) years of increasing caution (age 24–28 years), 3) controlled fear of flying (age 30–38), 4) safe years (age over 38 years).

If defences were adequately and appropriately developed, the flier's career could progress unhampered. If, however, circumstances either overwhelmed defences or if defences controlled the anxieties but prohibited aviation duties, the diagnosis of the fear of flying would be quite likely. Consideration of the progress of personal adaptations enabled psychologists and psychiatrists to explain the fear of flying as an adjustment problem as well as a manifestation of exhaustion, neurosis, and psychosis.

Perry (18) notes the importance of both predisposing and precipitating factors in troubled fliers. It is important to investigate a predisposition in the sense of premorbid-»preaeronautical personality«, such as a precipitating stress that brings to the declining of toleration to anxiety. He describes a wide variety of symptoms resulting from the flier's effort to control anxiety. The symptoms include dissociative reactions, phobic reactions, psychophysiological reactions, and gross combat stress reactions.

Goorney and O'Connor (19) also describe three categories of anxiety associated with flight: fatigue, focal anxiety, and generalised anxiety associated with flying. Each disorder has a correspondingly worse prognosis for return to flying duty.

As I mentioned earlier, the broad classes of fear of flying include: 1) symptoms stemming from pre-existing disorder, 2) overwhelming situational stress including exhaustion, and 3) effects of maturation on motivation. In the beginning, in the

training phase, overcoming the fear of flying is a normal appearance and it is an answer to the real possibility of fall, injury, or death. Furthermore, the fear of the unknown associated with the act of flying is normal. This normal fear has a useful, constructive, and preparative role because it increases the readiness for action. As the training progresses, the fear wears off and finally disappears. It is a normal, physiological process.

The literature on the fear of flying has recently taken yet another turn. The increasing commercial aviation added the passenger's fear of flight to the list of disorders. The psychology of the passenger's fear may somewhat resemble that of the flier's, but implications and motivations of passengers differ from those of fliers and require a separate review. The passenger's fear comprises four fears: acrophobia (fear of heights), claustrophobia (fear of closed spaces), fear of airplane crash – death, and the fear of loss of control over a situation (control relinquished to somebody else). Moreover, the lack of knowledge about how a plane functions increases the sense of anxiety. Considerations about the passenger's fears should also include the secondary gain from the disease.

THE »BREAK-OFF« PHENOMENON

A flight surgeon should also be familiar with in-flight conditions, including those associated with the »break-off« symptoms (20, 21). The break-off phenomenon is a type of dissociative reaction which occasionally happens to pilots flying at high altitudes in a one-seat jet aircraft and with little to do in the cockpit. The pilot experiences a sense of isolation and separation from the ground, his environment or the aircraft. The three conditions most frequently associated with the experience are: high altitude (approximately 15,000 to 45,000 ft), being alone in the aircraft, and not being particularly busy with flying the aircraft (22). The same may happen to the helicopter pilot while flying above the sea, when the sea and sky tend to blend. Weather conditions such as an ill-defined horizon, lack of external visual cues to relative motion, and limited in-flight duty requirements have been considered as significant factors. The term »break-off phenomenon« was based on one of the early descriptions by a pilot who reported that he felt as if he had »broken off from reality«. Approximately one third of the pilots surveyed by *Clark and Graybiel* (23), who described the phenomenon, reported feelings attributed to »break-off phenomenon«. Of those reporting such symptoms, approximately two-thirds reported favourable experiences, while one-third expressed fear or anxiety. Several cases similar to the »break-off phenomenon« have been described in non-aviation groups such as Eskimo hunters developing »kayak-dizziness«, long-distance lorry drivers, snowmobile operators in polar regions, and prisoners.

The »break-off phenomenon« has been incorporated into the larger spectrum of disorientation phenomena, and is connected with the concept of in-flight suggestibility problems which may spawn in-flight anxiety conditions and disorientation. The »break-off phenomenon« would probably be classified as Type II disorientation, since it is recognised by the pilot, whereas Type I disorientation excludes the pilot's recog-

nition. Furthermore, a relationship between the »break-off phenomenon« and dissociation resulting from sensory deprivation has also been suggested.

We must be aware that the »break-off« symptoms could precipitate an acute anxiety attack with phobic and other psychological manifestations, and may lead to the »fear of flying« reaction or may manifest itself in a more serious psychiatric disorder. Even benign presentations may make aviators lose their confidence, thereby affecting their operational skills and safety.

Most authors suggest that the fear of flying includes three categories. One can ask three questions and then apply her/his own clinical judgement to the problem of diagnosis and treatment. The first question is whether the symptoms stem from a pre-existing disorder. The second is whether the ego was overwhelmed by the situational stress or one was simply physically and emotionally exhausted from overwork. The third question is whether changes in life have temporarily altered the flier's motivational and defensive structure. The factors can occur singly or in combination with each other. Understanding the underlying psychodynamics is essential to the recognition of the fear of flying and must be timely and swift.

THERAPY AND PROGNOSIS

The therapy of the fear of flying is based on the correlation between the symptoms and the underlying dynamics. Clarification, interpretation, and confrontation may be necessary, but must occur strictly within a favourable therapeutic alliance between the patient and the flight surgeon. Ordinarily, psychotherapy of aviators must be intensive and brief (the pilot must resume flying as soon as possible in order to avoid the »phobia of flight«), face to face (in order to avoid regressive mechanisms and to strengthen the defence mechanisms), and without interpretation.

Mc Carthy and Craig (24) recommend flying therapy as the optimal treatment for aircrew who have developed anxiety associated with flight. The basic principle is to use the flying environment for three purposes: to present the stimuli which originally provoked anxiety, to limit the proportion of each sortie during which the victim was required to function at low overload; and to practice anxiety control techniques in the presence of the anxious stimuli while controlling the aircraft. Control of somatic manifestations of anxiety, particularly hyperventilation, is emphasised and practiced to proficiency on ground and in the air. Such treatment includes cognitive and analytic psychotherapy and relaxation training, followed by simulation and later actual exposure to an ascending hierarchy of anxiety-generating situations at the controllable level of arousal.

The prognosis is based on the aviator's ability to work through those psychodynamic conflicts. Changes in motivation weaken the aviator's ability to defend against the real and symbolic fears he or she associates with flying. As the motivation weakens, the fears become more threatening and the new defensive manoeuvres more pathological. Aviators may continue to fly if the symptoms are minor and the motivation to resolve conflicts is high. The most crucial factor in the patient's prognosis is his true motivation to continue flying.

I would like to conclude this review with *Jones'* words: »The most notable characteristic in successful fliers is their absolute faith in themselves. Anything that shakes or destroys this, that casts doubt on their self-control, may lead to disproportionate anxiety about flying« (25).

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Sažetak

STRAH OD LETENJA

Letenje daje osjećaj moći i kontrole. Zrakoplovci iskušavaju svoje vještine, kao i fizička i zemaljska ograničenja. Da bi se letenje moglo nastaviti bez ograničenja, piloti moraju održati ravnotežu između straha i radosti, požrtvovanja i ljubavi, opasnosti i nagrada od letenja. Letenje je opasno, a opasnost je realna i simbolična, stvarajući strah i anksioznost. Pilot koji osjeti strah od letenja najčešće se koristi adaptivnim mehanizmima obrane, ali koji put neadaptivni mehanizmi obrane prevagnu nad adaptivnima pa latentni strah od letenja postaje manifestan. Tumačenje straha od letenja se proteže od psihoanalitičko-endogenog s jedne, do bihevioristično-egzogenog s druge strane. Oba modela treba prihvatiti fleksibilno, uzimajući u obzir međusobnu interakciju endogenih i egzogenih čimbenika. Strah od letenja može se također manifestirati kao »break-off« fenomen.

Terapija straha od letenja zasniva se na uzajamnom odnosu simptoma i ishodišne psihodinamike. Prognoza ovisi o sposobnosti da se prorade ti psihodinamički konflikti. Zrakoplovac može nastaviti s letenjem ako su simptomi blaži, a motivacija da se razriješe konflikti visoka. Presudan čimbenik u prognozi pacijenta je njegova prava motivacija za nastavak letenja.

Ključne riječi:
anksioznost, »break-off« fenomen, zrakoplovac

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