Special Article

The Disease That Caused Weight Loss in King David the Great

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Background. Older people have suffered from loss of weight since the dawn of history. This research is unique in character, as it combines contemporary medical knowledge with the presentation of a case taken from Ancient History.

Objective. To analyze from a modern perspective the biblical description of a geriatric patient who suffered from weight loss.

Methods. Biblical texts associated with the aged were examined and passages relating to geriatric patients who suffered from loss of weight were closely studied. This study is based on the evaluation of the biblical passages, and not on the interpretations of various rabbis and scholars.

Results. Passages such as: “I forget to eat my bread” and “My knees are weak through fasting; and my flesh failed of fatness” and “… my bones cleave to my skin” indicate anorexia, fasting, extreme loss of weight, and subsequent cachexia. Among the numerous causes associated with weight loss, malignancy, social problems such as loneliness, social isolation and neglect by others, and psychological causes including depressed mood were most likely responsible. With regard to malignancy, it seems that the King was affected by primary carcinoma of the prostate or kidney with subsequent metastases to bones.

Conclusion. This report demonstrates that the roots of geriatric medicine can be traced to biblical times.

“‘My knees are weak through fasting, … my flesh failed of fatness, … my bones cleave to my skin.’”

(Psalm, Bible)

Elderly patients have suffered from decrease in weight that may be associated with various diseases for thousand of years. By studying the causes of weight loss in geriatric persons from ancient history, modern physicians can expand their knowledge thereby improving their professional skills. Who suffered from loss of weight in biblical times? What is the most likely diagnosis? What are the characteristics of the diseases that caused weight loss? This article aims to answer these questions by evaluating weight loss in a geriatric patient as described in the Bible.

Weight Loss as Described in the Bible

King David, the second and greatest of Israel’s Kings who ruled that country 3526 years ago, suffered from an eating disorder. A passage in Psalm CII: 4 “… / [the King] forget to eat my bread” tells us about lack of food intake. This condition indicates anorexia [from Gk, a-orexis, no appetite]. Anorexia is defined as lack or loss of appetite, resulting in the inability to eat (1). A subsequent passage “‘My knees are weak through fasting; and my flesh failed of fatness’” (Psalm CIX: 24) shows that David’s anorexia led to fasting and consequently to unintentional weight loss. The weight loss was so extreme that “… my bones (the King’s) cleave to my skin” (Psalm CII: 6). The condition is compatible with cachexia. Cachexia (Gk, kakos, bad, and hexis, state) indicates general ill health and malnutrition, marked by weakness and emaciation, usually associated with a severe disease such as tuberculosis or cancer (1). What was the disease responsible for anorexia, fasting, extreme loss of weight, and subsequent cachexia in this particular geriatric patient, who was a member of the highest socioeconomic stratum?

Unintentional weight loss is a relatively common problem in clinical practice (2). Low body weight and unintentional loss of weight predict increased morbidity and mortality, especially in the elderly population (3–6). A retrospective review of 8428 hospital admissions shows that underweight is a strong predictor of in-hospital mortality in patients aged older than 60 years (7). The Framingham Heart Study demonstrates that the relative risk of death in persons aged older than 65 years who are at the lower extreme of body mass index is twice that of other individuals (8). Data for persons in their seventies and eighties also suggest that higher mortality rates occur in those with low body weights (9). Thus, it is very likely that cachexia damaged the old King’s health and even accelerated his death.

Physiological Anorexia of Aging

Most men reach maximum body weight in their forties and most women in their early fifties. Beyond these ages, declining lean body mass normally accounts for the majority of weight lost. Weight distribution shifts from muscle mass in the extremities to fat stores in the trunk (10). Despite the
increase in body fat and obesity that occurs with aging, there is a linear decrease in food intake over the life span. This conundrum is explained by decreased physical activity and altered metabolism with aging (11). Since older persons fail to regulate food intake adequately, they develop a physiological anorexia of aging (11,12).

Physiological anorexia is related to the decreased hedonic qualities of feeding, altered hormonal and neurotransmitter regulation of food intake (11), alterations in energy metabolism, loss of calories in the urine or stools (10), poor absorption from the gastrointestinal tract (13), abnormal gastrointestinal contraction and secretion, altered perceptions of taste or smell, satiety, nausea (10,14), poor oral hygiene, ill-fitting dentures (15), and aversion to specific foods because these foods no longer seem palatable (10).

Was King David afflicted by physiological anorexia of aging? The subsequent words “...I forget to eat my bread” indicate lack of appetite, absence of caloric intake, and altered perceptions of taste, smell, and satiety or, alternatively, the onset of anorexia associated with dementia (16). All these factors can be attributed to physiological anorexia of aging. However, the diagnosis of physiological anorexia of aging seems very unlikely in this case because the King’s anorexia led to fasting and subsequent cachexia. An excessive loss of weight may point to a serious or fatal disease (17). What was the disease that caused cachexia in King’s David case?

**PATHOLOGICAL CAUSES OF WEIGHT LOSS**

Weight loss in older persons can be ascribed to one or more of three major sets of causes: 1) social, 2) psychological, and 3) medical (11). Social causes include poverty, functional impairment limiting the ability to perform activities of daily living, social isolation, poor nutritional knowledge, and institutional factors such as ethnic food preferences, inability to tolerate other residents’ behavior, the monotony of institutionalized food, loss of mate, fear of old age and changing roles, feelings of rejection, all resulting in emotional stress, strain, and deprivation (11,18,19).

Were any of the above social causes responsible for loss of weight in King’s David case? Subsequent passages in Psalm XXII: 7,12 “… I am a worm, and not a man; a reproach of men, and despised of the people” … and “… trouble is near; for there is none to help” indicate loneliness, social isolation, and neglect by others. It seems, therefore, that these social problems were associated with the loss of appetite that led to subsequent loss of weight.

Psychological causes of weight loss include depression, bereavement, alcoholism, late-life mania, life-life paranoia, anorexia tardive or nervousa, sociopathy, excessive life burden, cholesterol phobia, choking phobia, and globus hystericus (11,20). Was any psychological cause responsible for the King’s weight loss? The subsequent passages “… a broken and depressed heart” (the King’s) and “I am feeble and depressed…” (Psalms LI: 19; XXXVIII: 9) indicate a depressed mood. In older persons, depression is associated with anorexia and weight loss more than in younger individuals (21). Thus, depression probably also contributed to King David’s anorexia, fasting, and subsequent loss of weight. It seems very unlikely that other psychological conditions played a role in his loss of weight.

There are many medical conditions that cause weight loss. Patients with hyperthyroidism may experience increased appetite that leads to increased food consumption. However, hyperthyroidism, especially in elderly individuals, may present without obvious change in appetite, and anorexia as well as loss of weight may be the predominant symptoms (10,22,23). Hypothyroidism may cause weight gain. However, this disorder may also lead to anorexia and apathy resulting in weight loss, especially in elderly people (10).

Was King David afflicted by hyperthyroidism or hypothyroidism? As previously shown, the King was afflicted by mild hypothyroidism (24). It is very unlikely that this condition led to extreme weight loss. Other endocrine and metabolic diseases such as diabetes mellitus, Addison’s disease, pheochromocytoma, panhypopituitarism, and hypercalcemia (10,11) can be excluded, since there are no data to prove their existence. For the same reason, various infections such as tuberculosis, fungal disease, amebic abscess, and subacute bacterial endocarditis (10) can be removed from the list. The use of medications that can interfere with appetite by causing abdominal discomfort, anorexia, nausea, diarrhea, and inhibition of gastric emptying seems very unlikely (10). Although various gastrointestinal diseases such as peptic ulcer, gastroesophageal reflux, cholelithiasis, inflammatory bowel disease, hepatitis, pancreatitis, gluten enteropathy, pancreas insufficiency, Helicobacter pylori infection, cardiac disease (congestive heart failure), respiratory diseases (end-stage lung disease, chronic bronchitis), renal disease (uremia), connective tissue diseases (rheumatoid arthritis, systemic lupus erythematosus), and neurological diseases (Parkinson’s disease, stroke) (10,11) may cause anorexia and subsequent loss of weight, there are no data to prove their presence.

Malignancy is probably the most common cause of weight loss, especially when major signs and symptoms are absent (2,23,25). The sentences “My strength failed . . . and my bones are consumed” and “My bones wasted away through my anguish roasting all day long” (Psalm XXXI: 11, XXXII:3), analyzed in a previous article (26), indicate that King David suffered from osteoporosis, which afflicted his bones. Among the various diseases that may be associated with osteoporosis, the most likely are senile osteoporosis, hyperparathyroidism, or malignant disease, and the diagnosis of malignancy is the most acceptable. A combination of two factors, cachexia and intractable bone pains, reinforces a previous conclusion that the King was indeed afflicted by a neoplastic disease.

Tumor infiltration of bones is cited as the most common cause of cancer pain, and is most often secondary to the primary disease in the prostate, breast, thyroid, lung, or kidney (27,28). Was King David afflicted by thyroid cancer? As previously reported, the King suffered from mild hypothyroidism (24). It would be very ironic if the King had been affected by carcinoma of the thyroid. The diagnosis of lung cancer is very unlikely because there are no signs to indicate the presence of chronic lung disease.
Similarly, there are no reasons to suspect breast cancer. It follows that the King was affected by primary carcinoma of the prostate or kidney with subsequent metastases to the bones.

**SUMMARY**

This article analyzes the most likely diseases associated with loss of weight in King David. The passages “...I forget to eat my bread” and “My knees are weak through fasting; and my flesh failed of fatness” and “...my bones cleave to my skin” indicate that the King suffered from anorexia, fasting, and extreme loss of weight leading to cachexia. Multiple causes may be responsible for weight loss in a single patient (17). For King David, a combination of multivariate causes, such as neoplastic, social, and psychological, played a role in the development of cachexia. It is most likely that the King was affected by primary carcinoma of the prostate or kidney with subsequent metastases to bones. His social problems can be associated with social isolation, loneliness, and neglect by other people, while his psychosocial problems included his depressed mood.

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