

THE FIRST RECORDED CASE OF INFLAMMATORY MASTITIS— QUEEN ATOSSA OF PERSIA AND THE PHYSICIAN DEMOCÊDES

by

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QUEEN ATOSSA OF PERSIA is a figure of considerable interest to the historian of classical times. She stands out as an individual among the many anonymous women of the period and is the best defined female personality of Ancient Persia. Herodotus of Halicarnassus described her as *all-powerful*, Hellanicus as the *first woman letter writer*, Grote (1846–56) as a person of *commanding influence* in the reign of Darius, Maspero (1917) as *toute-puissante*, Glover (1924) and Myres (1953) as the *power behind the throne*, while How and Wells (1912) state that *her name become proverbial* for the reigning Sultana. Such a woman was a rarity in antiquity.

Much of our information about Atossa is derived from the *History of Herodotus*. Atossa appears, however, as one of the dramatis personae of Aeschylus' great tragedy, the *Persae*, in which the father of tragedy examines the effect upon the Persian Court and people, of the defeat of the army of Xerxes by the Greeks. For a readily accessible and authoritative account of the life, travels and work of Herodotus reference may be made to Myres (1949) in the *Oxford Classical Dictionary* and to Myres (1953). In brief it may be said that his claim to be regarded as the Father of History is not unjustified although there are many deficiencies in his critical attitude. Myres summarizes his literary art as

economy of detail, significant hearsay without guarantee of veracity; Aeschylean word painting, Pindaric allusiveness, Aristophanic humour, above all, Sophoclean irony; a new literary art and expository skill, applied in lucid prose to a fresh field of research—the cause of 'mens deeds'—which establish Herodotus as the 'Father of History'.

Atossa was a sister of Cambyses, who was a son of Cyrus, the founder of the Achaemenid Persian Empire (559–529 B.C.). Cambyses, a tyrannical madman and possibly an epileptic, succeeded his father and conquered Egypt in 525 B.C. He married Atossa and a younger sister. Soon after Cambyses died, allegedly of bone caries and gangrene of the leg, in Syria following an accidental self-inflicted wound of the thigh with his own sword. It may be noted, however, that according to the Behistun Inscription his death may have been suicide by a knife-wound. He died at Babylon (521 B.C.). At this time he was returning to Persia to suppress the rebel Gaumata who was pretending to be Smerdis, another son of Cyrus who had, in reality, been secretly murdered by Cambyses. This pseudo-Smerdis had usurped power and had married all the wives of

Cambyses including Atossa. After reigning for eight months Gaumata, who was originally a Median Magus, was overthrown by a conspiracy led by Darius, son of Hystaspes, Governor of Persia.

Darius thus became king (521 B.C.) probably at the age of twenty-nine, and reigned until 486 B.C. He married Atossa and her virgin sister Artystone, Parmys (daughter of Smerdis and granddaughter of Cyrus) and also the daughter of Otanes who had played a part in the overthrow of the pseudo-Smerdis. Before his accession he had married a daughter of Gobryas, who was a nobleman and later bow-bearer to Darius and Phratagune, daughter of his brother Artanes. It seems certain, however, that Atossa was the only queen and that the others were subsidiary wives. Before his accession the daughter of Gobryas bore him three sons, the eldest of whom was Artabazanes; Atossa had four sons—Xerxes, Masistes, Achaemenes, and Hystaspes (How and Wells, 1912). We also know that Phratagune also bore him sons. When Darius died in 486 B.C. he was succeeded by Xerxes who had prior claim to the throne by his descent on the maternal side from Cyrus the Great King and founder of the empire.

It will thus be seen that Atossa was the daughter of King Cyrus, had been the wife of three kings—her brother Cambyses, the pseudo-Smerdis, and Darius Hystaspes—and was the mother of King Xerxes. It is not unreasonable to assume that Herodotus and modern scholars were correct in their assessment of her power and influence.

Not long after the accession of Darius in 521 B.C. he dislocated his ankle as he leaped from his horse during the chase. His Court physicians, who were Egyptians, were unable to reduce the injury and indeed made conditions worse by their violent treatment so that for a week the king was unable to sleep. Now a certain Greek physician, Democêdes, had been the slave of Oroetes (a governor of Sardis appointed by Cyrus) who murdered Polycrates of Samos. Democêdes was a friend of Polycrates, and was enslaved by Oroetes at this time. Some time later Darius had Oroetes killed for his several misdoings, so that Democêdes came into the king's possession. He was called in to treat the injured ankle.

Democêdes of Croton, son of Kalliphon, was one of the most famous physicians of the sixth century B.C., and practised first in Aegina and Athens, then at the Court of Polycrates in Samos. After his experiences at the Court of Darius he eventually returned after some adventures to Croton, and later went to Plataea. His interests seem to have inclined to surgery rather than to medicine.

He treated Darius by Greek methods, replacing the violent manipulations of the Egyptians by milder remedies. At first he enabled Darius to sleep and shortly afterwards was able to restore completely the function of the ankle. Democêdes was suitably and liberally rewarded and held in high regard but his liberty was not restored. It is interesting to note that he successfully interceded for the lives of the discredited Egyptian physicians who were about to be impaled because they had been surpassed by the Greeks.

Soon after this (according to the translation of Rawlinson) Atossa

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had a boil ($\varphi\tilde{\nu}\mu\alpha$) form on her breast which, after it burst, began to spread and increase. Now so long as the sore was of no great size, she hid it through shame and made no mention of it to any one: but when it became worse, she sent at last for Democ edes and showed it to him. Democ edes said that he would make her well, but she must first promise him with an oath that if he cured her she would grant him whatever request he might prefer; assuring her at the same time that it should be nothing which she could blush to hear. On these terms Democ edes applied his art and soon cured the abscess.

The request made by Democ edes was that Atossa should assist him to return to Greece, which after several adventures he did succeed in achieving, having been sent by Darius on a reconnaissance prior to a projected Persian invasion of Greece. Democ edes escaped at Tarentum and eventually returned to Croton.

It will be seen that Rawlinson, for long the acknowledged standard translator of Herodotus into English uses the terms 'boil' and 'cured the abscess'. On the other hand, Ewing (1940) in his treatise *Neoplastic Diseases*, for long a standard work, cites Atossa as an early recorded case of breast-cancer; in this he was followed by Lewison (1955). Ewing bases this contention on the translation of $\varphi\tilde{\nu}\mu\alpha$ as a *chronic growth* or *swelling* by the Greek department of Amherst College. It is strange that Ewing should have accepted this interpretation in view of his long experience of tumour behaviour. The standard Lexicon of Liddell and Scott (1940) gives the alternative for $\varphi\tilde{\nu}\mu\alpha$ as *growth, that which grows, frequently of diseased growths, tumour, tubercle*, etc. The Lexicon to Herodotus of Powell (1938) gives the translation as *tumour*.

The texts for the relevant passage are similar, e.g. those of Schweighaeuser (1824), Gaisford (1824), Long (1838), Bekker (1845), Stein (1857), Sayce (1883), Hude (1908), and Godley (1938). On the other hand it is interesting to note the interpretations of $\varphi\tilde{\nu}\mu\alpha$ given by the various translators and editors. *Boil* is chosen by Rawlinson (1858), Evans (1941), Blakeney (1949), and Grant (1897); *ulcer* by Davis (1829) and Long (1829); *abscess* by Stocker (1831) and de Selincourt (1954); *swelling* by Godley (1938) and Powell (1949). Only Grote (1846) in his history, Wheeler (1854) and Cary (1885) select *tumour*. These interpretations, of course, are those of classical scholars without special medical knowledge and thus lack validity; it is interesting however to note that the majority of these laymen elect for a non-neoplastic disease process.

The salient features of Atossa's illness are that a swelling appeared in the breast, burst, continued to spread and increase until successfully treated by Democ edes *with the simple remedies* available at that time (sixth century B.C.). We may be sure that no major surgery was undertaken and that cure probably resulted from simple non-operative measures. After her cure Atossa lived a normal life, bore four sons to Darius and died at an advanced age. It seems reasonable to assume that at the time of her illness she was still a young woman, possibly in the early years of the third decade of life; she married Darius only four years after Cambyses ascended the throne, and her first marriage.

In an analyses of surgical lesions of the breast I have shown (Sandison 1958) that in 72 specimens from patients in the *third* decade of life carcinoma was seen only 2 times, fibroadenoma 37 times, duct papilloma only once, epitheliosis 5

times, simple cystic disease 10 times, sclerosing adenosis 4 times, infective mastitis 9 times and lactational abnormality 2 times. Since many simple infections of the breast are not surgically biopsied the true incidence of infective mastitis is very much higher than these figures would suggest. In an earlier study (Sandison 1955) I showed that of 301 breast specimens seen in women under the age of forty carcinoma accounted for 20 per cent of cases and that this proportion was largely accounted for by patients in the *fourth* decade of life (52 of the 58 cases).

Carcinoma is uncommon in very young women but it does occur and cannot be excluded solely on the grounds of the age of a patient. Nevertheless it is universally accepted that the prognosis in such young women, unless immediate radical treatment is undertaken at the earliest date, is hopeless: even with radical treatment the outlook is poor. It is also generally accepted that pregnancy and lactation have a marked effect in accelerating the course of the disease. It may therefore be accepted that Atossa's condition was not carcinoma; a carcinoma which burst and continued to spread (i.e. fungated) would rapidly have proved fatal; the fact that Atossa had multiple pregnancies and survived to an old age makes the possibility quite untenable.

Fibroadenoma in the younger woman never fungates; it is true that this may happen with giant fibroadenoma (cystosarcoma phyllodes) but the latter form is rare in the third decade of life. As with carcinoma, cure would not result from simple remedies. Breast papillomata, hyperplasia (epitheliosis), or simple cystic diseases and sclerosing adenosis likewise do occur, but can never be said to burst, the implication being that something under the skin erupted through it. The only lesion likely to occur in a young woman which might burst, spread, yield to simple measures and leave no harmful after-effects is some form of infective mastitis. This might well proceed to superficial suppuration, discharge of pus and be complicated by a spreading cellulitis of skin and subcutaneous tissues. In the past such disease processes were not rare (Velpéau 1856).

The commonest form of infective mastitis is puerperal infection but no indication is given that Atossa was at the relevant time either pregnant or lactating. Non-puerperal acute inflammations do, however, occur; these may follow rupture of small ('sebaceous') cysts of the areola. I have seen biopsies from three such cases in the past five years. Another important cause is trauma; this may be accidental or due to cosmetic measures, e.g. cutting or plucking hairs from the breast. It may also result from the use of a badly fitted or too tight brassière. We are not well-informed as to the dress of Persian women of ancient times nor of the covering of the breasts. Houston (1954) has suggested that Elamite women, *circa* 2000 B.C., may have worn a brassière-like or bust-bodice type of garment similar to the Indian *choli* worn under the sari. During the Assyrian period women wore a tunic covered by a shawl. Representations of women in the Achaemenid period are scanty but show a similar form of dress. In the fifth century B.C. a full-length veil or cloak and a knee-length tunic were worn over a longer garment, but in Sassanid times female dress was not unlike that of the Assyrian period. In Greek and Roman times the breasts were sometimes covered by a bandeau-like garment; this is figured in some vase-paintings

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and in a mosaic floor at Piazza Armerina in Sicily (Seltman 1956). This garment—the *strophium* of the Roman period was worn with a sleeveless *tunica interior*; it may have produced some flattening and constriction of the breast but could not produce the same local pressure effects as the modern boned or wired brassière.

It is possible that the queen and noblewomen of such a sophisticated court as that of Persia may have undertaken quite elaborate toilet-measures. Already in dynastic Egypt, long before the period under consideration, female cosmetic preparations were available, elaborate and widely used. It is also known that, later, in Greek and Roman times hairs were removed from the body with tweezers, pitch-plaster and depilatories. Since the Persians eagerly adopted new fashions of luxury as well as ornament from foreign nations (Grote 1846–56) this supposition is not unreasonable. Inflammatory mastitis which is chronic from the onset also occurs but more often in women in the fourth and later decades of life. This form of mastitis may be associated with mammary duct ectasia or mammillary fistula and rarely yields to simple medical measures. Often repeated surgical intervention is necessary and some cases finally come to local amputation of the affected breast.

Conclusions: Herodotus describes briefly a lesion of the breast of Queen Atossa which was successfully treated by the Greek physician Democêdes of Croton. Although the case has been uncritically accepted by some authorities as an early report of mammary tumour, this interpretation is quite untenable. Almost certainly Atossa suffered from a superficial acute mastitis with suppuration and spreading cellulitis. Such a lesion might well have responded to simple medical measures. It would be unprofitable to speculate at length on possible aetiological factors but rupture of a simple cyst of an areolar gland or cosmetic trauma seem likely causes.

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