

Historical Review

Cystosarcoma Phyllodes of the Mammary Gland – Müller's Tumor

For the 180th Birthday of Johannes Müller

Arsen Fiks

Life Sciences Research, IIT Research Institute, Chicago, IL, USA

Summary. For the last 150 years, cystosarcoma phyllodes of the mammary gland has had 62 different synonyms. At the present time, the most logical name for it seems to be tumor phyllodes.

The result of the histological analysis of every single tumor should contain information about the degree of its maturity.

The classical description of cystosarcoma phyllodes given by Johannes Müller (1838) is still considered the basis for understanding the clinical and histogenetical aspects of this neoplasm.

Key words: Cystosarcoma phyllodes – History – Johannes Müller-Synonyms

Tumors of the mammary gland were well known in ancient times. Thus a number of Egyptian Papyri contain descriptions of breast cancer. Some information about tumors can also be found in the writings of outstanding Greek and Roman philosophers and physicians. Thus Celsus in his famous “De Medicine” considered breast cancer a separate disease and discovered the phenomenon of metastases in axillary lymphatic nodes.

It is also worth mentioning that it is from the mammary gland that the study of tumors originated, for the first surgery was applied to tumors of the mammary gland. That is why Rindfleisch (1889) called the mammary gland ‘the breaster of the theory of neoplasm.’

In 1774, Ochme described a rapidly growing tumor of the mammary gland of a young woman (the weight of the tumor was approximately 4 kg). Though the author used the term ‘cancer’, he considered it benign.

On the basis of the clinical and anatomical characteristics presented by Ochme in his description of the tumor, Gritskevich (1966) concluded that it was nothing but cystosarcoma phyllodes.

Address offprint requests to: Arsen Fiks, M.D., Ph.D., Senior Pathologist, Life Sciences Research, IIT Research Institute 10 West 35th Street, Chicago, Illinois, 60616, USA

In 1828, Chelius singled out a special form ('cystic hydatid') of the mammary gland. The same year, Cooper described neoplasms of the breast, which later were determined to be (classified as) cystosarcoma phyllodes and shortly after that he was the first to create the classification of mammary gland diseases (1829).

Ten years later Johannes Müller (1838), gave a detailed description of several tumors of the mammary gland which in his opinion were quite mature but he called them 'cystosarcoma phyllodes'. Müller's description of this specific tumor was so complete and comprehensive that Funck-Brentano, Bertrand and Poilleux (1838) gave this kind of tumor Müller's name.

Broca (1866) in his *Traité des Tumeurs* referred to cystosarcoma phyllodes as a non-epithelial tumor. Virchow (1867) characterised this tumor as of limited malignancy but capable of metastasizing.

Later, many scientists wrote literature surveys together with the analysis of a considerable amount of their own material all devoted to the same problem (Lee and Pack 1931; Du Stefano 1937; Funck-Brentano et al. 1938; Treves and Sanderland 1951; Coggi and Tropeano 1953; Funck-Brentano 1953; Fruhling and LeGal 1954; Przybora 1954; Lester and Stout 1954; Steger 1955; Lafargue 1955; Puento-Duany 1958; Wojnerowicz 1958, 1965; Lomonaco 1960; Toniolo and Dalla Costa 1961; Fiks 1964, 1969; Treves 1964; Oberman 1965; Norris and Taylor 1967; McDivitt et al. 1967; Pietruszka and Barnes 1978; Da Silva Neto and Gianni 1979).

This list could be considerably enlarged if all the numerous descriptions based on one or two cases of this kind of tumor were mentioned. Descriptions of cystosarcoma phyllodes can also be found in some works devoted to the problem of sarcoma and fibroadenoma of the mammary gland (Finsterer 1907; Geist and Wilensky 1915; Fox 1934; Funck-Brentano et al. 1938; Adair and Herrmann 1946; Pricolo 1956; Puento-Duany 1958; Farrow 1961; Fiks 1964; Fawcett 1967).

Indeed, many publications have conflicting evaluations of the clinicoanatomical peculiarities of cystosarcoma phyllodes. As a result, a lot of controversial and sometimes even illogical names were given to this tumor.

The author of this article found 62 synonyms for cystosarcoma phyllodes of the mammary gland. These synonyms can be distributed into 4 groups:

1. The names characterising the degree of the maturity of the neoplasm (the mature tumor-synonyms NN20, 23, 33, 36, 55; the immature tumor-NN11, 16, 25, 27, 28, 34, 43, 52, 57).

2. The names which provide the macroscopic characteristics of the neoplasm (the size of the tumor-synonyms NN47, 48, 53, 55; the presence of papillary structures NN17, 26, 28-30, 37, 40, 49, 52, 57, 59, 60, 62).

3. The names characterising the peculiarities of the histological structure (synonyms NN4, 13-16, 22, 39, 41, 44, 50, 57, 61).

4. The names based mainly on the morphogenesis of the tumor (the derivative of the fibroadenoma-synonyms NN20, 37-42, 49, 53, 55, 59; the derivative of the cysts NN1, 4, 7, 9-12, 15, 23, 30, 32, 34, 52).

During the last decade, many authors insisted on names which did not contain the term 'sarcoma' (synonyms NN51, 53, 59, 61, 62). No doubt the

Table 1. List of synonyms of Müller's tumor phyllodes of the mammary gland

No.	Year	Author	Synonyms
1	2	3	4
1	1828	Chelius	Cystic hydatid
2	1829	Cumin	Adenoma fibrosa
3	1829	Cooper	Cellular hydatid
4	1829	Peget	Grandular proliferous cystis
5	1835	Hodgkin	Composite cystoids
6	1835	Fischer	Cystosarcoma phyllodes
7	1838	Müller	Cystosarcoma
8	1839	Warren	Hydatid tumor
9	1839	Howkins	Tuberous cystic tumor
10	1846	Brodie	Serocystic tumor
11	1852	Erichsen	Cystic sarcoma
12	1858	Velpeau	Tumor adenoide
13	1860	Schuh	Gelatinous cystosarcoma
14	1863	Virchow	Intracanalicular myxoma
15	1872	Amodo	Telangiectatic cystosarcoma
16	1874	Gross	Proliferous cystosarcoma
17	1876	Bigelow	Intracanalicular papillary fibromyxoma
18	1877	Iversen	Intracanalicular sarcoma
19	1878	Watson	Intracanalicular myxofibroma
20	1878	Dietrich	Fibroadenoma intracanaliculare fibromatosum
21	1882	Reingear	Sarcoma with lacunar cystic
22	1884	Jüngst	Intracanaliculares mycoma mit hyaliner degeneration
23	1888	Leser	Proliferating cystic tumor
24	1888	Leser	Fibrocystoadenoma intracanaliculare
25	1889	Schmidt	Cystosarcoma myxomatodes
26	1889	Ziegler	Cystofibroma papillare
27	1892	Nötzel	Cystosarcoma proliferum
28	1893	Pilliet	Cystosarcoma papillare
29	1894	Kursteiner	Papilloma intracanaliculare
30	1894	Haeckel	Cystoma papilliferum
31	1895	Pearce	Intracanalicular fibroma
32	1899	Snow	Intracystic sarcoma
33	1899	Kreibig	Pseudosarcoma
34	1900	Grohe	Cystofibrosarcoma
35	1902	Beneke	Pearly cystosarcoma phyllodes
36	1902	Beneke	Adenoma pseudosarcomatodes
37	1904	Schmuckert	Fibroadenoma intracanaliculare papillare
38	1909	DeQuervain	Fibroadenoma phyllodes
39	1909	Friend	Intracanalicular fibroadenoma with sarcomatous change
40	1911	Gorham	Adenomyxofibroma intracanaliculare papillare
41	1924	Binkert	Fibroadenoma intracanaliculare sarcomatodes xanthomatodes
42	1924	Binkert	Fibrolipoadenoma intracanaliculare papillare
43	1930	Frangenheim	Fibrosarcoma phyllodes
44	1930	Wohlsecker	Fibromixoma intracanaliculare obliterante
45	1930	Wilm	Adenomixoma congenita
46	1930	Coen	Mutation tumors
47	1931	Lee, Pack	Giant intracanalicular myxoma
48	1931	Lee, Pack	Giant intracanalicular fibroadenomixoma
49	1934	Ewing	Fibroadenoma papillare intraquittico
50	1934	Petridis	Fibromyxosarcoma

Table 1 (continued)

No.	Year	Author	Synonyms
1	2	3	4
51	1938	Funk-Brentano	Fibroadenomixoma phyllodes
52	1938	Funk-Brentano	Cystosarcoma phyllodes de J. Müller
53	1941	Owen, Adams	Giant intracanalicular fibroadenoma
54	1942	Hill, Stout	Adenofibrosarcoma
55	1942	Reed, Hilbert	Giant fibroadenoma
56	1942	Negri	Giant fibroadenoma myxomatodes
57	1944	Hinterberg	Sarcoma phyllodes lipomatodes
58	1946	Aiken	Brodie's disease
59	1948	Nogues, Arrighi	Fibroadenoma intracanalicular phyllodes
60	1950	Horton, Baker	Cystosarcomatoid phyllodes
61	1953	Puente-Dyane	Fibroadenomixoma proliferante, hipertrofico o hiperplasico
62	1960	Lomonaco	Tumor phyllodes

avoidance of the term 'sarcoma' has been correct because not every cystosarcoma phyllodes is a sarcoma.

Many of these synonyms are not used today by clinicians and pathologists. It was only in 1960 that cystosarcoma phyllodes received a new, simpler and more logical name: tumor phyllodes (Lomonaco). However, it is known that tumor phyllodes can have different degrees of maturity. Wojnerowicz (1958, 1965) distinguished 3 periods of development from the clinicomorphological point of view: 1. the initial-intracanalicular fibroadenoma with the elements of tumor phyllodes only; 2. pure tumor phyllodes; 3. tumor phyllodes with the elements of sarcoma 'in situ'. Treves and Sunderlaud (1951) suggested that there are benign, premalignant and malignant forms of this tumor.

All the considerations given above and the special research (1964, 1965, 1969) done by the author of this article makes it more reasonable for a morphologist to use the term tumor phyllodes (or Müller's tumor phyllodes). And in the histological evaluation, it is necessary to indicate the degree of maturity of the mesenchymal component (I – the form of complete degree of maturity, II – the form of middle degree of maturity, III – the immature form).

In concluding this brief historical review, the author would like to emphasize the following: 1) the retrospective analysis of any medical problem contributes to a better understanding of the problem. 2) the research done by Johannes Müller continues to be important even after 150 years. It is hardly possible to overestimate the contribution of J. Müller made to medicine, biology and philosophy. This opinion is easily confirmed by reading the biography of Müller by Virchow (1855) and Keller (1958). However, human knowledge is always in constant flux, so the information about tumor phyllodes is changing.

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