TERATOMATA OF THE INGUINOSCROTAL REGION.[1]

INCLUDING A REVIEW OF REPORTED CASES.

BY DAVID C. HILTON, M.D.,
OF LINCOLN, NEBRASKA.

TERATOMATA are tumors of peculiar mixed histologic composition. Every class of tumor is composed of a single representative tissue-element, derived in embryo from one of the germinal layers,—epiblast, hypoblast, or mesoblast.

Teratomata are described by several authors as tumors containing tissues, organs, or systems of organs, derived from two or all of the germ-layers, the highest type being a fœtus in fœtu. In such tumors we may expect to find epidermis and its appendages, squamous mucous membrane, teeth and nerve elements, etc., representing the epiblast; bone, cartilage, connective tissue, muscle, etc., representing the mesoblast; columnar and ciliated epithelium in gland or membrane formation, representing the hypoblast.

Many tumors classified as teratomata, however, do not correspond in embryologic origin or in histologic composition to this description.

As to embryologic origin, many dermoid and other cysts commonly classified as teratomata take their origin from one germ-layer only, instead of from two or all of these layers. For instance, dermoid cysts whose wall is essentially composed of epidermis, hair, nail, epidermal glands, and teeth, and whose content is made up of epidermal detritus and gland secretions, are epiblast in origin, and possess no representative of the other two germ-layers, unless the connective or areolar tissue-layer external and contiguous to the epidermal structure is an essential part of the neoplasm. This connective-tissue layer as an increment to the cyst-wall has not been dem-

[1] Read before the Nebraska State Medical Society, May 3, 1906.

onstrated to be neoplasmatic in origin or growth. It appears to be adjacent tissue that has become displaced, rearranged, and adherent to the cyst-tissue proper during its actual growth. Many echinococcus cysts possess a similar connective-tissue layer which is not of the parasite, but of the adjacent tissue of the host.

As to histological composition, many dermoid and other cysts classified as teratomata present no complex of tissue elements. For instance, some dermoids are described as being composed of epidermis, there being no other tissue-elements from the epiblast or other germ-layers.

The series of teratomata herein set forth includes twenty-six dermoid cysts, which, according to descriptions of contents, are strictly ectoblastic in origin, containing epidermis and its appendages, and sometimes teeth. Also two cases of sebaceous cystomata appear, representing a differentiated type of epidermal cell, a simple tissue-element.

Only recently have anatomists and surgeons turned their attention to this form of tumor.

According to A. Pabeuf (03), the first mention of such a tumor was made in the year 1666. Verneuil states that Duverney described at that time a "mass in the testicle which had the form of a fœtus." Another supposed case was attributed to Schroekius Brothers. The first thoroughly authentic case, however, was a teratoma of the right testicle, the size of a cocoanut, containing "bone, cartilage, oil, and flesh," reported orally by St. Donat in 1697. To Geoffrey St. Hilaire the credit is due of having placed the study of these peculiar neoplasms upon a scientific basis, in the early part of the last century, by proposing the abdominal-inclusion theory as an explanatory hypothesis. The number of reported cases has not been completely enumerated in previous reviews of the literature. Kocher made a report of fourteen cases of scrotal teratomata, and Pabeuf (03) of forty-seven cases of scrotal and testicular teratomata. I have collected seventy-nine cases from the inguinoscrotal region, excluding doubtful cases reported before 1697.

The distribution of the reports in time is as follows:

1600—1700	1
1700—1800	0
1800—1850	9
1850—1890	23
1890—1906	46

It is noteworthy that seventy-five per cent. of all recorded cases have been reported within the last twenty-five years. This is accounted for in the rise and popularization of aseptic surgery, coincident with which more of this class of patients have sought a radical cure.

The point of origin may be referred in forty cases to a testicle; in twenty-one, to the scrotum; in fourteen, to the inguinal canal or cord; and in one, to the tunica vaginalis testis. In three cases, the point of origin cannot be ascertained. In cases wherein the tumor invaded two or more groups of tissues, those parts which are the more dependent or are continuous with more compact tissues by layers of fascia, are taken to be secondarily invaded. On the contrary, the less dependent, more compactly constituted tissues are taken to be the point of origin or primarily-invaded area.

The size of the tumors varies considerably. The majority of them are not larger than a hen's egg. The largest recorded size is 22 by 23 cm.; the smallest is 1 by 1.2 cm. In several instances no size is definitely recorded.

The age of the patients presenting these tumors is distributed promiscuously from five months to sixty-four years.

The diagnosis of these tumors is usually comparatively easy, but sometimes very difficult. As to physical consistency, on palpation they are firm, or soft and doughy, depending on the character and quantity of contents. They are, with few exceptions, cysts. Some contain fluid substance—*i.e.*, oil secreted by sebaceous glands. Others contain solids or solid particles mingled with a varying amount of fluid, making a mealy bran-like mass, which is doughy and inelastic, pitting on pressure. The solid material is desquamated epithelium, hair, and sometimes teeth, cartilage, and bone.

With the exception of sebaceous cysts, which are often multiple in or adjacent to the integument along the median raphe of the perinoscrotal region, the tumors are usually single.

As to differential diagnosis we have to distinguish them from other neoplasms benign and malignant, from parasitic cysts such as cysticercus, from granulomatous masses such as syphilitic, tubercular and actinomycotic swellings, from serous and sanguinous exudates such as hydrocele, hæmatocele, and hæmatoma of the tunica vaginalis testis, scrotum, or spermatic cord, from suppurative inflammatory swellings, and from inguinal hernia.

From among those pathologic conditions that may simulate teratomatous cysts I shall select two for detailed consideration, viz., inguinal hernia and hydrocele of the spermatic cord. Cystic teratomata invading the inguinal canal may be very difficult to differentiate from the two conditions mentioned.

As to herniæ: those which are completely reducible or tympanitic on percussion because of gas present in the contained bowel are not to be confused with teratomata. On the other hand, herniæ not completely reducible and containing omentum may resemble in detail teratomatous tumors of the type of dermoid cysts. On inspection, both form rounded swellings dilating the external inguinal ring. On palpation, both have a peculiar doughy feeling, being soft, and pitting on pressure. Dermoids are of more uniform consistency, however, herniæ containing omentum often exhibiting firm nodules in the general mass. Dermoids, containing mostly fluid, are firm and elastic and of uniform consistency, thus differing from the type of hernia under consideration. On percussion, both reveal dulness. Thus we may find signs on examination very similar in both conditions.

The history usually reveals a difference in the development of the two conditions. Irreducible or partially reducible herniæ usually give a history of former reducibility. In case of dermoids, the tumor is never actually reducible. The patient may say that it is or has been reducible, because displacement of the swelling upwards and inwards with the finger past the ex-

ternal inguinal ring has been possible. My patient was very positive that he could formerly reduce the swelling.

As to hydrocele of the cord, we have a lesion that may resemble a cystic teratoma containing fluid.

The details of differential diagnosis may be succinctly put as follows:

History.—Hernia. Slowly developed (excepting congenital hernia). Development from above downward. Gradual increase in size. Common to all ages. Reduction of mass through inguinal canal possible in early course, if not at time of examination.

Teratoma of Inguinal Region.—Same as above, except that complete reduction is never possible. History of reducibility of the tumor may be given, because in some cases the tumor can be displaced upward through the external inguinal ring.

Hydrocele of the Cord. Same as above. Reduction impossible. Moves with cord.

Inspection.—Hernia. Smooth, rounded mass, bulging the external ring. If reducible, may be seen to disappear through the external ring.

Teratoma of Inguinal Region.—Similar in appearance and position. Seen to partially disappear on pseudo-reduction, in favorable cases.

Hydrocele of the Cord.—Smooth, rounded mass on the cord. Does not disappear on attempted reduction.

Palpation.—Hernia. Such as contain intestine are even, and may be soft or somewhat elastic, due to gas in the bowel-loops. Tremor imparted by movement of gas may be discernible.

Such as contain omentum and other solid structures are soft, even, or lumpy and inelastic, pitting on pressure. Testicle is below the swelling.

Teratoma of Inguinal Region.—Similar to hernia containing omentum.

Hydrocele of the Cord.—Firm or fluctuating, even consistency. Attached to the cord.

Auscultation.—Hernia. Movement of gas may be audible.
Teratoma.—Negative.
Hydrocele of the Cord.—Negative.

The treatment of these tumors is complete extirpation of the cyst and its contents, under aseptic conditions; or, if the tumor has become infected, antiseptic measures and postoperative drainage of the field of operation is necessary. If the growth of the tumor has displaced any of the structures making up the supports of the inguinal canal, they should be dealt with as in operation for hernia, with a view of leaving the inguinal region well supported as a prophylactic against hernia.

Report of Author's Case.—The following case came under my care in June, 1905:

Mr. F. G. H., 32 years of age, American by birth, and a pastor by occupation, had since his fourth year noticed an enlargement occupying the right inguinal region, and secondarily invading the scrotum. He described it as having been very small at first, and reducible like an inguinal hernia may be, until recent years. He supposed it to be a "rupture." It had been diagnosed as "rupture" and as "hydrocele of the cord" by different surgeons. Its presence had not apparently affected his general health, and its growth had been slow. Of recent years, on account of its size, it had interfered with the performanec of certain kinds of manual labor in which he had engaged.

One night while walking briskly along a dark street he came violently against a post, the brunt of the impact having been received over the swelling. He immediately became faint and nauseated, and felt a sudden downward motion as of something from above pushing into the scrotum on the right side. The pain subsided within a few minutes, and he presented himself at my house in a state of anxiety, having walked several blocks from the scene of the accident.

On inspection, the inguinal canal and serotum on the right side were found to be occupied by an enlargement as great as a large cocoanut. It was rounded in outline, longer from above downward than transversely, and narrowest where it entered the external inguinal ring. The skin covering it was tense, and

spotted with petechiæ due to subcutaneous extravasation of blood sustained in the accident. It was not translucent.

On palpation, the whole mass was doughy, pitted on pressure, and exhibited an uneven, lumpy consistency, as of a soft mass occupied by more resistant bodies. Reduction was impossible, although some of the contents could be pushed upward through the external inguinal ring. The testicle was behind the enlargement.

Percussion revealed uniform flatness, and auscultation was negative.

The patient was confident that while the enlargement was being manipulated with a view of reducing a possible hernia, something slipped back out of the scrotum, but this was not at all clear to me.

On the following morning I operated. The technique was essentially that of the Ferguson operation for inguinal hernia. A semilunar skin incision was made, circumventing the right internal inguinal ring above, and in this instance continuing downward past the spine of the pubes, and over the pendant portion of the tumor. The skin and both layers of superficial fascia were reflected downward, exposing the inner and outer pillars of the external inguinal ring. The wall of the cyst resembled in appearance a thickened hernial sac.

Another incision was made through the external inguinal ring and intercolumnar fascia parallel with the aponeurotic fibres of the external oblique muscle, far beyond the internal inguinal ring. Upon retracting the aponeurosis, the inguinal canal was exposed and found to be occupied by its usual contents and the tumor mass. The cyst-wall had its highest attachment by firm adhesions to the structure forming the inner boundary of the internal inguinal ring, viz., that portion of transversalis fascia occupying the space between the internal inguinal ring and its line of attachment to the pubes behind the conjoined tendon.

The tumor was removed in its entirety and the supports of the inguinal canal, which had been considerably displaced by the presence of the cyst, were dealt with as in the Ferguson operation for inguinal hernia. In the scrotum, the large blood-clot, that had accumulated following the accident, was removed. Uneventful recovery followed the operation.

TABULATION OF REPORTED CASES.

Location of Tumor.	Size.	Contents.	Treatment.	Age of Patient.
Testicle, right.	2½ x 3 cm.	Teeth, Osseous Tissue, Hair.	Excision.	Child.
Scrotum.	Almond.	Corneal Desquamation. Fluid.	Removal. Recovery	35 yrs.
Scrotum.	Lemon.		Extirpation.	21 yrs.
Scrotum.	Hen's egg.	Sebaceous material.	Iodine injection.	30 yrs.
Testicle, right.	Fist.	Teeth. Adipose. Epithelium.	Castration.	38 yrs.
Testicle, right.	Hen's egg.	Sebaceous fluid. Cartilage. Granular material.		14 yrs.
Testicle, right.		Yellow fluid. Connective tissue.	Operation.	40 yrs.
Testicle, left.	10½ x 9 x 7 cm.	Mucilaginous fluid. Cartilage. Epithelium.	Castration.	29 yrs.
	9 x 7 x 7 cm.	Epithelial cells.		
Testicle, right.	Hen's egg.	Hair. Sebaceous material, Cartilage.	Removal.	1 yr.
Testicle, right.	Orange.	Horny material. Cartilage. Epithelium.	Castration. Recovery.	27 yrs.
Tunica Vaginalis testis.		Sebaceous and teratomatous material.	Excision. Cure.	11 yrs.
Scrotum.	Large.	Hair. Small bones.	Excision. Recovery.	20 mos.
Scrotum and inguinal region.	2 x 2½ inches.	Bone. Calcareous concretions.	Removal. Recovery	64 yrs.
Inguinal region and scrotum.	Plum.	Hair. Granular substance.		37 yrs.
Testicle, right.	26 x 27 cm.		Castration. Recovery.	33 yrs.
Testicle.	1 x ¾ inches.	Hair. Fat. Cartilage. Bone.	Excision.	8 yrs.
Testicle, left.	Orange.	Hair. Cartilage. Fat. Watery gelatinous substance.	Extirpaton	35 yrs.
			Castration.	2 y. 6 m.
Scrotum.	2½ x 5 inches.	Fœtal parts.	Excision. Recovery.	Child.
Inguino-scrotal region, l.	1 x 1½ cm.	Epithelium. Cartilage.	Volkmann's Operation, for chronic hydrocele.	16 yrs.
Scrotum.	1½ x 2½ cm.	Hair. Mucoid fatty fluid. Sweat glands.	Extirpation. Cure.	34 yrs.
Testicle, right.	Large.	Osseous material.	Removal.	8 mos.
Testicle.	14½ x 15½ x 12½ cm.	Epithelium.	Removal.	47 yrs.
Testicle, left.	2½ x 2½ inches.	Hair. Bone.	Extirpation. Recovery.	2 yrs.
Testicle and cord, right.	Goose egg.	Bone. Epithelium. Elements.	Castration.	48 yrs.
Testicle, right.		Fatty fluid. Nerve tissue.		32 yrs.
Scrotum.	Cocoanut.	Hair. Cartilage.	Castration. Recovery.	42 yrs.
Inguinal canal.	Hen's egg.	Sebaceous material. Hair.	Removal. Recovery	34 yrs.

TABULATION OF REPORTED CASES.

Location of Tumor.	Size.	Contents.	Treatment.	Age of Patient.
Scrotum, right.	Plum.	Creamy material. Hair.	Removal. Recovery	20 yrs.
Testicle, right.			Removal.	27 yrs.
Testicle, right.			Removal.	27 yrs.
Scrotum, left half.	3 x 4 cm.	Hair. Teeth. Bone.		25 yrs.
Testicle, right.	5 x 5.5 x 8 cm.	Epithelium. Cartilage.		25 yrs.
Testicle, right.	5 cm.	Hair. Sebaceous glands. Bone. Fat.	Operation.	8 yrs.
Scrotum, median line.	1 x 3 cm. 2 tumors.	Sebaceous and sweat glands. Epithelium. Oil.	Removal.	22 yrs.
Perineo-scrotal raphe, l.		Hair. Sweat glands.	Removal. Recovery	32 yrs.
Testicle, left.	Plum.	Epithelium. Muscle. Cartilage.	Castration.	27 yrs.
Testicle.		Dermoid.		
Scrotum, right.	Plum.	Bony and granular material. Muscle.	Extirpation.	18 mos.
Scrotum and inguinal canal.	Hen's egg.	?		2 yrs.
Testicle, right.	Extended to knee.	Fœtal parts.	Ligation of ring, Cure.	6 mos.
Scrotum, right.	15 x 18 cm.	Mucous and sebaceous glands. Hair. Cartilage.	Operation. Recovery.	18 yrs.
Scrotum, right.	6 x 3 inches.	Hair. Glairy fluid.	Excision. Cure.	15 yrs.
Scrotum and Hernia.	24 x 28 inches, 14 lbs.	Epithelium. Fat. Cartilage. Hair.	Removal. Cure.	60 yrs.
Testicle, right.	Orange.	Yellow gelatinous fluid. Elastic fibres.	Extirpation.	6 mos.
Perineo-scrotal raphe.	9 small tumors.	Described as dermoids.		23 yrs.
Perineo-scrotal raphe.	4 small tumors.	Described as dermoids.		29 yrs.
Testicle, left.	Turkey egg.	Hair. Sebaceous material. Teeth.	Removal.	11 yrs.
Testicle, right.	Goose egg.	Hair. Sebaceous material. Teeth.	Castration. Recovery.	12 yrs.
Testicle, right.	Fist.	Hair. Pus.	Excision.	22 yrs.
Testicle.	2 fists.	Hair. Sebaceous material. Teeth. Sudoriferous glands.	Operation.	66 yrs.
Scrotum and Testicle, l.	Hen's egg.	Epithelial glands. Fluid. Cartilage.	Excision.	16 yrs.
Testicle, right.	2 fists.	Hair. Epithelium. Sebaceous glands. Fibrous tissue.	Castration. Recovery.	18 yrs.
Testicle, left.		Putty-like material. Hair.	Removal.	
Testicle and Cord, left.	2 testes.	Detritus. Bony tissue. Fat.	Extirpation.	73 yrs.
Testicle, right.		Dermoid.		26 yrs
		Bony deposit.		

TABULATION OF REPORTED CASES.

Location of Tumor.	Size.	Contents.	Treatment.	Age of Patient.
Inguinal Canal and Scrotum.	Very large.	Parts of fœtus.	Abscess formation, Recovery.	
Similar to preceeding.	Very large.	Parts of fœtus.	Abscess formation. Recovery.	
Perineal-scrotal raphe.	Almond.	Epithelial detritus. Papillæ. Pus. Sebaceous material.	Ablation. Recovery.	29 yrs.
Inguinal Canal and Scrotum, right.	Hen's egg.	Hair and epithelium.	Operation.	31 yrs.
Testicle, left.		Epithelium. Cartilage. Fat.	Excision.	49 yrs.
Testicle, left.	Cocoanut.	Bone. Cartilage. Oil. Flesh.	Excision.	Y. Man.
Inguinal Canal.	Extensive.	Bone. Etc.	Excision.	47 yrs.
Testicle, left.	8 x 11 cm.	Epithelial pearls and muscle.	Removal.	43 yrs.
Testicle and Cord, left.	2 x natural	Epithelium. Cholestomatous material.	Castration. Cure.	28 yrs.
Testicle, left.	12 x 18 cm.	Fibrous tissue. Cartilage. Muscle.	Castration. Death in 6 months.	51 yrs.
Testicle, right.	Fist.	Sebaceous material. Hair. Cartilage. Horny fragments.	Excision. Death.	27 yrs.
Testicle, left.	22 x 23 cm.	Cartilage and Cheesy material.	Castration. Unsatisfactory.	28 yrs.
Testicle, left.	6 x 12.	Epithelium. Hair. Sweat glands.	Excision.	
Testicle, left.	3 x natural.		Excision.	39 yrs.
Testicle, left.	5 x 8 cm.	Sebaceous material. Cartilage.	Castration. Recovery.	21 yrs.
Testicle, right.	Fist.	Teeth. Osseous material. Hair.	Excision. Infection. Death.	27 yrs.
Scrotum.	Hen's egg.	Hair. Cartilage. Fat.	Castration. Recovery.	2 yrs.
Scrotum.	Multiple.	Cyst.		
Scrotum.	Very large.	Bones comparable to ribs, vertebræ, femur.		
Scrotum, right.	Very large.	Bones of inferior extremities. Muscle.	Excision.	5 mos.

TABULATION OF REGION OF DISTRIBUTION OF TUMORS.

Organ Involved.	Primary Invasion.	Secondary Invasion.	Total Times Invaded.
Testicle, right	21	1	22
Testicle, left	15	2	17
Undesignated Testicle	4	0	4
Scrotum	21	9	30
Inguinal Canal and Scrotum	13	0	13*
Tunica Vaginalis	1	0	1
Unspecified	3	0	3

Total, 78. Plus Author's Case, 79.

* Plus Author's Case, 14.

The cyst-wall was found to be made up of epithelium, sudoriferous and sebaceous glands, and to be scantily lined by fine, light brown, lanugo hair. The content was a mealy mass of epidermal detritus and gland secretion. External to the epidermal lining of the cyst was a contiguous layer of fibrous tissue.

BIBLIOGRAPHY.

Abadie. Kyste Dermoide du Serotum Fistulise. Montpel. Med., 1903, xvi, 524.

Andre, de Peronne. Ollivier (d'Angers), Mem. de l'Acad. de Med., 1833, p. 480.

Bakó, S. Dermoid Cyste im Hodensack. Ungar Med. Presse, Budapest, 1904, ix, 375.

Bauchet. Arch. Gener. de Med., 1858, t. ii, 5, s. p. 71.

Boeckel, J. Inclusion Peritesticulaire. Bull. et Mem. de la Soc. de Chir., Apr. 24, 1878, t. iv, p. 302.

Breuss. Wien. Med. Wochenschrift, 1878.

Carey, H. Report of Two Testicular Teratoma, with a Review of Recent Literature. Bull. of the Johns Hopkins Hospital, Baltimore, November, 1902, p. 268.

Clarke, J. Dermoid of the Testis. Brit. M. J., Lond., 1895, ii, 1295.

Coley, W. B., and Buxton, B. H. Teratoma of the Testis. Ann. Surg., Phila., 1901, xxxiv, 391–7; 3 pl. (discussion), 415.

Cornil et Berger. Note Sur. un Cas d'Inclusion Scrotale. Bull. de l'Acad. de Med., March 3, 1885, p. 275; also Arch. de Physiol., May 15, 1885, No. 4.

Corvisart (1852). Reported by M. Lebert. Mem. de la Soc. de Biol., t. iv, p. 215.

Couville. Deux Cas de Kyste Dermoide du Testicule. Revue Internat. de Med. et de Chir. Pract., p. 165.

Decouvelaire & Augiers. Tumeur Mixte du Testicule, Etc. J. d. Sc. Med. de Lille, 1903, i, 201–208.

Dietrich, de Glogau. Journ. de Graefe, t. v, p. 183; also Wendt, Tabulae Votivae, Vratislav, 1822.

Duncan & Goodsir. Monthly J. of Med. Sc., Edinburgh, June, 1845, p. 533.

Ekl, de Landshut. See Lannelongue and Achard's Treatise on Congenital Cystes, 8° Paris, 1886.

English, C. H. Teratoma of the Testicle. Tr. Ind. M. Soc., Logansport, 1901, 79–88.

Erichsen. Science and Art of Surgery, Ed. 1, p. 931, 1880.

Fatti. Arch. Gen. de Med., t. xv, p. 543, 1827.

Feliciani, I. Dermoide Della Vaginale del Testicolo Sinistro. Gazz. Med. de Roma, 1897, xxiii, 309–314.

Firnhaber. Beitrag zur Pathogenese der Hodenteratome. Inaug. Diss., 1891, Grufswald.

Friedlander. Description des Rudiments Osseux d'un Foetus Renfermes dans le Testicule d'un Enfant. Revue Medicale, 1822, t. viii, p. 361.

Gaertner. Tumeur Tératoide Mixte du Testicle. These, Freibourg, 1897.
Geinitz. Extirpation Einer Dermoid Cyste, Etc. Deutsche Klinik, 1862, No. 22, p. 216.
Gessner, A. Ueber Mischgeschwulste des Hodens. Deutsche Ztschr. f. Chir., Leipz., 1901, lx, 86–126.
Godwin, H. J. A Dermoid Cyst in the Rt. Side of the Scrotum. Brit. M. J., Lond., 1901, ii, 715.
Gould, A. P. A Case of Dermoid Cyst of the Spermatic Cord. Lancet, Lond., 1893, ii, 1126.
Guinard. Teratome Intratesticulaire. Bull. et Mem. Soc. de Chir. de Par., 1903, n.s., xxix, 576–580.
Hayden. American Med. Journal, May, 1902, p. 811.
Heinen. Dermoide und Teratome des Hoden. Inaug. Diss., Bonn., 1893.
Hendrickson, W. F. Teratoma of the Testicle. Proc. Path. Soc., Phila., 1900–1, n.s., iv, 215–218.
Heschl. Dermoid of Scrotum. Prager Viertelj f. die Prakt., Heilk., 1860, p. 56.
Heuyer & Darier. Soc. Franc. de Derm. et de Syph., May 8 and June 12, 1890.
Hilton, David C. Teratoma of the Inguino-Scrotal Region; Including a Review of Literature.
Joachim, G. *Vide pre.* Dermoid im Skrotum. 8° Berlin, 1893.
Judet, H. Tumeur Mixte du Testicule. Bull. et Mem. Soc. Anat. de Par., 1901, lxxvi, 696.
Kalning, J. Zur Casuistik und Kenntniss der Dermoidcysten des Hodens. 8° Dorpat, 1876.
Koslowski, R. Ein Fall von Hodensack-Teratom. Arch. f. Path. Anat. (etc.), Berl., 1897, cxlviii, 36–42, 1 pl.
Lannelongue. Tumeur congenitale du scrotum sur laquelle on peut faire plusieurs hypotheses parmi lesquelles les plus probables sont celles d'une tumeur formée par les vestiges du corps de Wolff ou d'une inclusion scrotale. Bulls. de la Soc. de Chir. de Paris, 1880, t. vi, p. 431.
Lebert. Gaz. de Med., Par., 1852, 46, 51, 52.
Le Dentu. Teratome du Scrotum. Am. des Mal. des Org. Gen.-Urn., Feb., p. 115, ref. Virch.-Hirsh, Jahresberichte, 1890, xxv, p. 321.
Macewen, W. Case of Scrotal Inclusion, with Summary of Instances formerly met with. Glasgow M. J., 1878, x, 433–442.
Manley, T. H. Mammoth Dermoid Cyst of the Scrotum, Complicated with Inguinal Hernia. Canad. J. M. & S., Toronto, 1899, v, 289–95.
Mauclaire & Hallé, J. Teratome du Testicule chez un Enfant. Bull. Soc. de Pediat, de Par., 1902, ix, 269–274.
Mermet, F. Kystes Dermoides du Raphe Genito-perinéal. Bull. Soc. Anat., de Par., 1894, lxix, 53–61.
Moris, H. Kyste Dermoide du Testicule. Gazette des Hôp., Paris, n, du 10, April, 1902. Saint Louis Medical Journal, November, 1901.

Morris, C. C. Dermoid Cyst of the Testicle. St. Louis M. Rev., 1901, xliv, 325.

Nott, J. C. Testicle Containing Hair. Removal. Am. J. M. Sc., Phila., 1855, n.s. xxx, 78.

Pepere, A. Sui Teratomi del Testicolo. Clin. Mod., Pisa, 1903, ix, 553–555.

Piequé. Teratome du Testicule Gauche, Etc. Bull. et Mem. Soc. de Chir. de Par., 1898, n.s., xxiv, 60–74.

Pilate. Kyste Dermoide Pileux et Ossifere du Testicule. Bull. et Mem. Soc. de Chir. de Par., 1880, n.s., vi, 689–693.

Pollard, B. Dermoid Cyst of Testicle. Tr. Path. Soc., Lond., 1885–6, xxxvii, 342.

Porges, R. Ein Teratoider Tumor am Hoden. Wien. Klin. Wchnschr., 1897, x, 649–652.

Power, D. A. A Dermoid Cyst of the Right Testis. Trans. Path. Soc., 1887, xxxviii, 224.

Price, P. Deposit of Bone in Testis and Epididymis. Med. Times & Gaz., Lond., 1885, i, 494.

Prochaska. Trad. d'Après la Thèse Inaugurale d'Abraham Capadose, d'Amsterdam: Dissert de foetu intra foetum. 24 Juin, 1818, V, Geoffroy Saint Hilaire, t. iii, p. 299 et 308, notes.

Reclus, P. Kyste Dermoide du Raphe Perineal et du Serotum. Clin. Chir. de la Pitie, 8° Par., 1894, 450–461.

Reclus. Kyste Dermoide du Scrotum. Bull. et Mem. Soc. de Chir., de Par., 1892, n.s., xviii, 548.

Rennes. Archiv. Gen. de Med., 1831, xxvii, p. 26.

Robertson, W. E. Mixed Tumor (Teratoma) of the Testicle. Proc. Path. Soc., Phila., 1899–1900, n.s., iii, 36.

Saint-Donat. Nouvelles Observations sur la Pratique des Accouchements, Ed. 2, 1697, Paris, p. 79.

Santessen, Carl. Fall. v. Dermoideysta i Testis. Hygeia, 1875.

Schlagenhaufer. Wiener Klin. Woehensehrift, May, 1902.

Schwarz, C. Ueber ein Teratoma Testis. 8° Konigsberg, Pr., 1900.

Scudder, J. Cutan. & Genito-urin. Dis., N. Y., xi, 1902; xx, 253.

Spiess. Bull. de la Soc. Anatom., 1864, p. 277.

Sturgis, F. R. Cystoid Disease of the Testicle: Teratoma Testis? Am. M. Quart., N. Y., 1900, i, 110–40.

Tilanus. (Dermoid Cyst of the Left Side of Scrotum.) Schmidt's Jahrbücher, 1858, t. exv, p. 171.

Tricomi, P. Teratoma del Testicolo. Bull. d. r. Acad. Med. di Romi, 1884, x, 129–139.

Van Hook, W., & Dodds, R. A Dermoid Cyst of the Testicle. Chicago Med. Rec., 1891, ii, 321.

Velpeau. Clin. Chirurgicale, t. iii, p. 198, 1841.

Verneuil. Arch. Gen. de Med., 1855, Series 5, Vol. v, 641, and Vol. vi, 21, 191, 299.

Wetherby, B. J. Multiple Sebaceous Cysts of the Scrotum: Report of the Case. Tr. Luzerne Co. M. Soc., Wilkesbarre, 1903, xi, 135.