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Editorial

The Interceding Metarteriole-Myoid Stromal Gonadal Tumour-Testis

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Myoid stromal gonadal tumour emerges as an exceptionally discerned, benign testicular neoplasm comprised of spindle shaped cells reminiscent of smooth muscle cells and gonadal stroma. Tumefaction is postulated to arise from peritubular myoid cells or inter-tubular primitive mesenchymal cells subsequently demonstrating myogenic differentiation.

Previously designated as unusual gonadal stromal tumour, testicular stromal tumour with myofilaments or unclassified sex cord stromal tumour with predominance of spindle shaped cells, neoplasm configures as a 'pure' spindle shaped cellular tumour devoid of sex cord differentiation. The miniature, circumscribed, non encapsulated tumour expounds abridged, intersecting fascicles comprised of spindle shaped tumour cells admixed with intermediate to enlarged, ectatic vascular articulations. Tumour cells appear immune reactive to actin and S100 protein.

Myoid stromal gonadal tumour necessitates segregation from neoplasms as leiomyoma, testicular fibrothecoma or unclassified spindle shaped cellular predominant sex cord stromal tumour. Prognostic outcomes are superior.

Typically, testicular myoid stromal gonadal tumour incriminates young to middle aged male subjects between 4 years to 59 years although no age of tumour emergence is exempt. Median age of disease emergence is 37 years whereas mean age of disease occurrence appears at 43 years. Myoid stromal cell tumour incriminates unilateral testis [1,2].

Of obscure aetiology, tumefaction is posited to arise from peritubular myoid cells which are engendered from inter-tubular primitive mesenchymal cells demonstrating myogenic differentiation. Peritubular myoid cells contribute significantly to genesis of foetal testis and perpetuation of testicular function [1,2].

Myoid stromal gonadal tumour exhibits reoccurring chromosome arm level and whole chromosome level copy number gains which are indicative of genomic ploidy shifts. Chromosomal gains within chromosome 3, 6 or 6p, 7, 8, 9 or 9q, 11, 12, 14q, 15q, 17 or 17p, 18q, 20 and 21q and copy number loss in chromosome 22q may be observed [2,3].

Myoid stromal gonadal tumour emerges as asymptomatic neoplasm or an incidentally discovered testicular tumefaction. The lesion may be accompanied by testicular pain or engender infertility [2,3].

Upon frozen section, a low grade tumour composed of spindle shaped cells is observed [2,3].

Grossly, a uni-focal, well circumscribed neoplasm with yellow to tan hue is encountered. Neoplasm is miniature and varies from < 1 centimetre to 4 centimetre magnitude [3,4].

Upon microscopy, a well circumscribed, non encapsulated tumefaction is encountered. Tumour cells are spindle shaped and articulate abridged, intersecting fascicles which may configure a storiform pattern. Tumour cells are pervaded with scanty to moderate, pale to lightly eosinophilic cytoplasm with inadequately defined cytoplasmic perimeter. Tumour cell nuclei appear elongated, fusiform and are permeated with inconspicuous to miniature nucleoli with occasional nuclear grooves. Intervening collagen is scanty and enunciates attenuated bands. Neoplasm exhibits focal areas of intermediate to enlarged ectatic vascular articulations appearing adjacent to rete testis [3,4].

Cytological atypia is insignificant. Mitotic figures range from 0 to 5 per 10 high power fields. Focal necrosis or lymphatic and vascular invasion is absent. Foci of differentiated gonadal stromal cells as Sertoli cells, Leydig cells or granulosa cells are absent [3,4].

Ultrastructural examination exhibits myofilaments and desmosomes. Spindle shaped tumour cells are impregnated with lipid vacuoles. Elongated cells delineate spindle shaped nucleus and miniature cytoskeletal filaments [3,4].

Germ cell tumours derived from germ cell neoplasia *in situ*
Non invasive lesions as germ cell neoplasia *in situ*/gonadoblastoma
Germinoma
Seminoma, pure
Seminoma with syncitiotrophoblastic cells
Non seminomatous germ cell tumour, pure
Embryonal carcinoma
Yolk sac tumour, postpubertal type
Trophoblastic tumours, choriocarcinoma
Teratoma, postpubertal or teratoma with somatic type transformation
Non seminomatous mixed germ cell tumours
Regressed germ cell tumour
Germ cell tumours unrelated to germ cell neoplasia *in situ*
Spermatocytic tumour
Prepubertal (paediatric) tumours
Teratoma, prepubertal type
Dermoid cyst
Epidermoid cyst
Yolk sac tumour, prepubertal type
Prepubertal type testicular neuroendocrine tumour
Mixed prepubertal type tumours

Table 1: *World health organization of testicular germ cell tumours [3,4].*

Sex cord/Stromal Tumours
Leydig cell tumour
Malignant Leydig cell tumour
Sertoli cell tumour
Malignant Sertoli cell tumour

Large cell calcifying Sertoli cell tumour
Intra-tubular large cell hyalinising Sertoli cell neoplasia
Granulosa cell tumour
Adult type
Juvenile type
Thecoma/fibroma group of tumours
Other sex cord gonadal/stromal tumours
Mixed
Unclassified
Tumours containing germ cell and sex cord/gonadal stromal component
Gonadoblastoma
Miscellaneous non specific stromal cell tumours
Ovarian epithelial tumours
Tumours of collecting ducts and rete testis
Adenoma
Carcinoma
Tumours of paratesticular structures
Adenomatoid tumour
Mesothelioma(epithelioid/biphasic)
Epididymal tumours
Cystadenoma of epididymis
Papillary cystadenoma
Adenocarcinoma of the epididymis
Mesenchymal tumours of spermatic cord and testicular adnexa

Table 2: *World health organization of testicular tumours [3,4].*

Myoid stromal gonadal tumour appears intensely and diffusely immune reactive to S100 protein, smooth muscle actin (SMA), FOXL2, muscle specific actin (MSA), vimentin, inhibin, desmin, calponin or Wilm's tumour 1 (WT1) antigen.

Tumour cells appear immune non reactive to h-caldesmon, calretinin, SOX-9 or CD34 [5,6].

Peritubular myoid cells confined within adjacent seminiferous tubules appear immune reactive to smooth muscle actin (SMA), desmin, h-caldesmon, or calponin. However, aforesaid cells appear immune non reactive to S100 protein, inhibin, calretinin, Wilm's tumour 1 (WT1) antigen, SOX9, FOXL2 and steroidogenic factor 1 (SF1) [5,6].

Myoid stromal gonadal tumour requires segregation from neoplasms as leiomyoma, testicular fibrothecoma or unclassified spindle cell predominant sex cord stromal tumour [5,6].

Neoplasm may be appropriately ascertained by histological evaluation of surgical tissue samples with precise immunohistochemistry. Biochemical anomalies are absent.

Ultrasonography of testis exhibits a non homogenous, hypoechoic nodule superimposed with hyperechoic spots [5,6].

Tumefaction may be appropriately alleviated by surgical manoeuvers as orchiectomy. Adjuvant therapy remains superfluous.

Miniature neoplasms < 4 centimetre magnitude associated with decimated mitotic activity delineate an extremely favourable prognostic outcome.

Tumour reoccurrence or distant metastasis are exceptionally encountered [5,6].

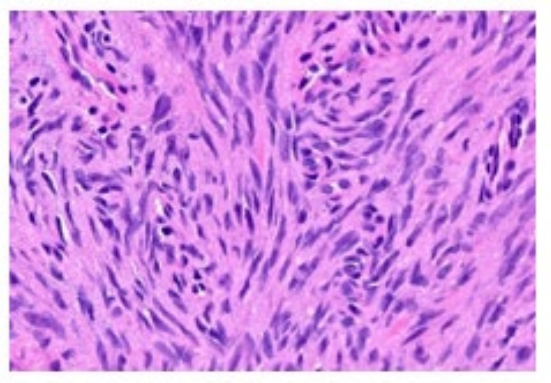

Figure 1: *Myoid stromal gonadal tumour demonstrating miniature fascicles of spindle shaped cells with focal storiform pattern. Tumour cells are permeated with moderate, pale cytoplasm and elongated nuclei with minimal intervening collagen and enlarged, ectatic vascular articulations [7].*

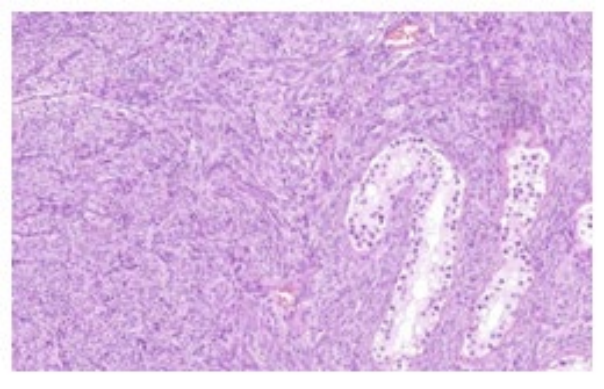

Figure 2: *Myoid stromal gonadal tumour delineating miniature fascicles of spindle shaped cells with focal storiform pattern. Tumour cells are permeated with moderate, pale cytoplasm and elongated nuclei with scanty intervening stroma and enlarged, ectatic vascular articulations [8].*

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7. Image 1 Courtesy: Pathology outlines.

8. Image 2 Courtesy: Springer link.

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