Ollier's Disease Associated With Ovarian Juvenile Granulosa Cell Tumor

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A six-year-old girl had Ollier's disease (OD) associated with juvenile granulosa cell tumor (JGCT). The clinical manifestations were right hemicorporeal deformity due to multiple skeletal enchondromas and precocious pseudopuberty. After the removal of a Stage Iai JGCT, hormonal symptoms disappeared. Neither the ovarian tumor recurred nor the enchondromas underwent sarcomatous change after a follow-up period of 7 years. A review of the literature showed five previous cases, three associated with OD and two with Mafucci's syndrome (MS). In these cases, patients were young and the ovarian tumors were homolateral to the hemicorporeal side involved by enchondromatosis. Data provided from these cases emphasize the notion of a generalized mesodermal dysplasia. JGCT behave in association with the OD in its usual fashion of hormonal production and low-degree aggressiveness.


Ollier's Disease (OD) is a rare, nonhereditary mesodermal dysplasia consisting of multiple enchondromas preferently involving tubular bone metaphyses frequently with an asymmetric hemiskeletal distribution.1 When associated with multiple subcutaneous hemangiomas, it is known as Mafucci's syndrome (MS). Approximately 15% of these cases undergo chondrosarcomatous change.2 The association of both OD and MS with a juvenile granulosa cell tumor (JGCT) has been previously documented in five instances, three associated with OD3-5 and two associated with MS.2,6 Another case was associated with two isolated costal enchondromas.7

The current case illustrates this association in an 8-year-old girl with OD and precocious pseudopuberty with a 7-year follow-up period.

Case Report

Clinical Findings

A 6-year-old girl was initially admitted in 1978 because of shortening of the right lower limb. Radiologically, multiple right enchondromas were found in phalanxes, scapula, pelvis, femur (Fig. 1), tibia, and tarsal bones. On the left side, only a paraaxial solitary enchondroma was visible in the iliac bone. Eighteen months later the patient was admitted because of a spontaneous fracture in the lower shaft of the femur. Six months after that she was readmitted because of copious vaginal bleeding that required blood transfusion. Physical examination showed breast and pubic hair development at Tanner Stage III and sharp vulvar labia hypertrophy. Both digital gynecologic examination and ultrasonography showed a right-sided large ovarian solid mass. Five days after the last admission an acute abdomen developed in this patient requiring emergency laparotomy, which demonstrated an International Federation of Gynecology and Obstetrics (FIGO) Stage Iai right ovarian tumor. Right salpingooophorectomy was performed. Postoperatively, the remission of the pseudopubertal changes was complete and estrogen and pregnanediol levels fell to values normal for her age.

The patient has been observed for 7 years with no evidence of recurrence of the ovarian tumor or further abnormal skeletal changes. Menarche has occurred normally and she has undergone two orthopedic corrective procedures in the right leg.

Pathology Findings

The right ovary was a mass measuring 12 × 9 × 8 cm with an intact capsule. On section it had a nodular, white-yellow appearance with isolated microcysts. Thirty-eight blocks were processed for histopathologic study, which showed a typical nodular growth separated by loose, edematous connective tissue. The nodules contained follicular structures of intermediate size lined by a thin layer of granulosa cells (Fig. 2) sometimes luteinized. Their contents were mucicarmine positive. Fusiform thecal cells, often luteinized, also were present and were easily differentiated from granulosa cells by reticulum
FIG. 1. Roentgenogram of right femur and tibia showing multiple radiolucent defects because of enchondromas. *Inset:* Mature cartilage from an enchondroma (H & E, ×120).

stain. Fibrils surrounded masses of granulosa cells, whereas thecal components were individually enmeshed by fibrils. Tubular structures, occasionally with a hollow lumen lined with cells of Sertoliform appearance (Fig. 3), were found in only one small area of the extensively sampled material. Nuclei were moderately pleomorphic with occasional central cleavage. The mitotic activity exceeded 20 per 10 high power fields. No necrotic areas were visible.

The bone biopsy specimens obtained from femoral and tibial lesions showed typical enchondromas (Fig. 1).

Discussion

JGCT is a well-known sex-cord stromal ovarian neoplasm different in appearance and behavior from the adult granulosa cell tumor (AGCT). It has been reported in association with multiple chondromatous skeletal abnormalities both in OD and MS in six instances. There may have been two further examples of this association. However, in the first instance, the report was not completely documented and the ovarian tumor was said to be a thecoma. In the second instance, only two homolateral enchondromas were found in a search for lung metastases and no other bone lesions were seen.

This association does not seem to be merely coincidental and may indicate a generalized mesodermal dysplasia. This fact is further emphasized by the associ-
ation of JGCT with other dysplastic conditions such as microcephaly, facial asymmetry, and Potter’s syndrome. An interesting finding in the current review (Table 1) is that the ovarian tumors originated on the same side as the pronounced skeletal abnormality, thus adding further support to the notion of a homolateral dysplastic phenomenon.

The six cases occurred in young patients (age range, six to 19 years). In two (five and the current case) prepubertal symptoms related to the hormones produced by the ovarian tumor appeared, a frequent symptom for JGCT in the prepubertal age, occurring in 82% of cases. The other cases showed evidence of an abdominal mass or abnormal vaginal bleeding.

A distinctive feature of the current case was the presence of occasional Sertoliform tubules in one isolated area. This finding is rare in AGCT and also has been reported in JGCT. Their presence does not preclude...


the diagnosis because these neoplasms also may show foci of other sex-cord stromal tumors such as typical thecoma, sclerosing stromal tumor, and AGCT.3

The behavior of the ovarian tumors was that expected for JGCT. Only in one instance did the tumor take a lethal course within 3 years. Early recurrences and more aggressive behavior differentiate JGCT from the adult form.3 Our case in Stage Ia1, despite a high mitotic activity, did not recur. Thus, JGCT associated with OD or MS does not seem to behave differently from unassociated cases. However, enchondromas in these conditions are known to undergo sarcomatous change, as occurred in one instance.2

From a clinical viewpoint, the treatment of the ovarian tumor should be conservative,3 bearing in mind the future fertility of these young patients and the relatively low incidence of an aggressive course.

REFERENCES