Two types of tumours are recognised:

1. **Hydatidiform mole:** oedematous and avascular villi and trophoblastic overgrowth. The classical "complete" mole has no fetus; in "partial" moles there are focal molar changes in the placenta and a fetus may be present. An invasive mole may show invasion of the myometrium and metastasis, which usually but not always regresses spontaneously.

2. **Choriocarcinoma:** large masses of anaplastic trophoblast invading muscle and blood vessels (but not fetal blood vessels). The villous pattern is generally lost. Vascular metastases in the lung and at the vaginal introitus are common.

Histological grading is often ambiguous and the key criterion is whether the disease is persistent or not, and whether it is metastatic or non-metastatic.

### Hydatidiform Mole

**Aetiology and Distribution**

At least 95% of complete moles are female (46,XX), both X chromosomes being derived from the father. The haploid sperm duplicates its own chromosomes after meiosis. More rarely two sperms fertilise an empty egg leading to a 46,XY mole. The partial moles are usually triploid, two sperms having fertilised an ovum (69,XXX, XXY or XYY). Diploid and tetraploid partial moles have also been described. Partial moles were believed to be rare: in reality they are commoner than complete moles but the majority are spontaneously miscarried and therefore not recognised. As in normal cells, the mitochondrial DNA is of maternal origin. Women with molar pregnancies have a high incidence of balanced translocations.

The frequency ranges from 0.5 to 2.5 in 1000 pregnancies. The rates in Japanese are double those in white people. There is an increased risk in teenagers and women over 35, the rate rising 10-fold after age 40. Age, parity and gestational age at the time of diagnosis do not affect the risk of malignant sequelae. Women with a history of one mole have a 10-fold risk of recurrence.
The presentation is similar to that of a threatened miscarriage, but the size of the uterus is often excessive for the calculated gestation. Hyperemesis, large luteal cysts and early onset pre-eclampsia are common, probably associated with the excess mass of the trophoblast. Signs of thyrotoxicosis are apparent in occasional cases. In partial moles, many of these features may be absent.

The diagnosis is confirmed by ultrasound. In most cases there is no fetus and the vesical tissue has a characteristic “snowstorm” appearance. Rarely a fetus coexists with a mole (partial mole), confusing the typical ultrasound findings. Levels of hCG are elevated but often do not give a useful distinction between molar and normal pregnancy. A chest X-ray should be performed to exclude metastases.

Complications such as haemorrhage and sepsis are rare. The principal risk is choriocarcinoma, which occurs in 3% of cases; the risk is low with partial moles. A repeat molar pregnancy occurs in only 1% of subsequent pregnancies. Follow-up with an hCG assay is essential. The determination should be repeated every 1–2 weeks until hCG disappears, then monthly for 1 year and 3-monthly for a second year. Positive levels may persist for up to 6 months; if still present at 1 year then there is almost invariably choriocarcinoma present. Patients who have had a prior trophoblastic tumour of any type should have a further urine and serum hCG assay 3 weeks after each subsequent pregnancy. A high ratio of free beta subunit to intact hCG may also identify patients with a high risk of malignancy.

Treatment

Even when the uterus is very large, the treatment is suction curettage. Oxytocin infusion should not begin until a moderate amount of tissue has been removed to reduce the risk of embolisation of trophoblastic tissue to the lungs; the procedure should be completed with sharp curettage. Evacuation is repeated if bleeding persists or hCG levels are elevated after 6 weeks. In women who have finished childbearing, hysterectomy should be considered. Prophylactic chemotherapy for all cases is not currently favoured. High oestrogen pills are thought to be associated with an increased need for chemotherapy, so barrier contraception should be used until hCG levels are undetectable, after which hormonal birth control can safely be used. Another pregnancy may be attempted after 1 year of negative hCG titres.

Chemotherapy is indicated for: (a) hCG levels greater than 30 000 IU/l (urine) or 20 000 IU/l (serum) at 4–6 weeks post evacuation; (b) rising hCG levels (more than 50% over 2 weeks) or titres that plateau for 3 consecutive weeks, at any time after evacuation; (c) persistent uterine bleeding and positive hCG levels; (d) histological evidence of choriocarcinoma or the appearance of metastases. Diagnostic curettage is rarely helpful, because the malignancy is often deep in the myometrium and occasionally can result in uterine perforation, haemorrhage and the need for hysterectomy. Single-agent treatment with methotrexate (higher dose with folinic acid) or actinomycin D often results in complete remission in non-metastatic trophoblastic disease. Rarely, combination chemotherapy is required.