



Figure 22-20 Common causes of abnormal uterine bleeding. **A**, The most common is dysfunctional uterine bleeding, seen here as anovulatory endometrium with stromal breakdown. Note breakdown associated with proliferative glands. **B**, Chronic endometritis with numerous plasma cells (*arrow*). **C**, Endometrial polyp. **D**, Submucosal leiomyoma with attenuation of the endometrial lining (*arrow*).

leiomyomas (Fig. 22-20D), or endometrial neoplasms, it most commonly stems from hormonal disturbances that produce *dysfunctional uterine bleeding* (Table 22-3). This is a clinical term for uterine bleeding that lacks an underlying organic (structural) abnormality. As discussed earlier, the normal cyclical proliferation, differentiation, and shedding

of the endometrium requires that all the involved pituitary and ovarian hormones be released at the proper time in the right amounts. Any disturbance of this finely tuned system may result in dysfunctional uterine bleeding, the most common causes of which are discussed in the following sections.

Anovulatory Cycle

The most frequent cause of dysfunctional bleeding is anovulation (failure to ovulate). Anovulatory cycles result from subtle hormonal imbalances and are most common at menarche and in the perimenopausal period. Less commonly, anovulation is the result of:

- *Endocrine disorders*, such as thyroid disease, adrenal disease, or pituitary tumors
- *Ovarian lesions*, such as a functioning ovarian tumor (granulosa cell tumors) or polycystic ovaries (see “Ovaries”)
- *Generalized metabolic disturbances*, such as obesity, malnutrition, or other chronic systemic diseases

Failure of ovulation results in excessive endometrial stimulation by estrogens that is unopposed by progesterone. Under these circumstances the endometrial glands undergo mild architectural changes, including cystic dilation, that usually resolve due to a subsequent ovulatory cycle.

Table 22-3 Causes of Abnormal Uterine Bleeding by Age Group

Age Group	Causes
Prepuberty	Precocious puberty (hypothalamic, pituitary, or ovarian origin)
Adolescence	Anovulatory cycle, coagulation disorders
Reproductive age	Complications of pregnancy (abortion, trophoblastic disease, ectopic pregnancy) Anatomic lesions (leiomyoma, adenomyosis, polyps, endometrial hyperplasia, carcinoma) Dysfunctional uterine bleeding Anovulatory cycle Ovulatory dysfunctional bleeding (e.g., inadequate luteal phase)
Perimenopausal	Dysfunctional uterine bleeding Anovulatory cycle Anatomic lesions (carcinoma, hyperplasia, polyps)
Postmenopausal	Endometrial atrophy Anatomic lesions (carcinoma, hyperplasia, polyps)