

# Diagnostic utility of glandular arrangement in endometrial polyps

## Endometriyal poliplerde glandüler yapılanmanın tanısal değeri

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### ABSTRACT

Endometrial polyps can be difficult to diagnose, especially when they are encountered in specimens obtained by biopsy or curettage. We evaluated 71 cases of grossly identifiable polyps from hysterectomy or polypectomy specimens for various histologic features and correlated the frequency of these features with variables such as menstrual state, histopathologic type, and shape of the polyps in order to find out diagnostic parameters in biopsy or curettage specimens. The most frequently observed histologic findings in both premenopausal and postmenopausal women were the presence of thick walled vessels and irregularly shaped glands (91.5% and 97.2%, respectively). In addition, we evaluated another histologic feature, the parallel arrangement of the long axes of endometrial glands to the surface epithelium in 33 of 71 (46.4%) endometrial polyps. It was more common in polyps excised from premenopausal (56.4%) than in postmenopausal women (34.3%) and was found in 7 of 8 (87.5%) functional polyps, while 40.6% of hyperplastic polyps showed this feature. The presence of thick walled vessels is the most frequently identified histologic feature in endometrial polyps. Parallel arrangement, when present, could be an additional clue in the diagnosis of endometrial polyp in routine curettage specimens.

**Key words:** Endometrial polyp, diagnostic criteria, glands, parallel growth

### ÖZET

Küretaj ve biyopsi materyallerinde, endometriyal polip tanısı koymak gerekli tanısal histopatolojik özelliklerin bu örneklerde tam olarak görülememesi nedeniyle güçtür. Histerektomi ve polipektomi örneklerinden elde edilen makroskopik olarak polip ile uyumlu 71 dokunun çeşitli histopatolojik özellikleri, küretaj ve biyopsi materyallerinde tanısal kriter bulmak amacı ile değerlendirildi. Bu özelliklerin sıklığı, hastanın menüstruasyon durumu, polibin histopatolojik tipi ve şekli gibi değişkenlerle karşılaştırıldı. Hem premenopozal, hem de postmenopozal kadınlarda en sık görülen histolojik bulgular, kalın duvarlı damarlar ve düzensiz şekilli glandlardır (sırasıyla %91,5 and %97,2). Aynı zamanda, endometriyal glandların yüzey epitelinin uzun eksenine paralel yerleşim göstermesi şeklinde tanımlanan bir başka histolojik özellik değerlendirildi ve 71 endometriyal polibin 33'ünde (%46,4) bu özellik saptandı. Bu özellik premenopozal kadınlarda (%56,4), postmenopozal kadınlardan (%34,3) daha çok görüldü. Ayrıca hiperplastik poliplerde %40,6 oranında izlenirken, fonksiyonel poliplerde bu oran %87,5 idi. Endometriyal poliplerin histopatolojik tanısında kalın duvarlı damarların görülmesi en sık izlenen bulgudur ve rutin küretaj spesmenlerinde paralel dizilim, eğer var ise, tanı için önemli bir ipucu olabilir.

**Anahtar sözcükler:** Endometriyal polip, tanısal kriterler, gland, paralel büyüme

### INTRODUCTION

Endometrial polyps are benign, localized overgrowths of endometrial glands and stroma

covered by epithelium. They are common in women over 40 years of age. They may be broad and sessile or pedunculated with a slender stalk (1).

Endometrial polyps can be difficult to diagnose, especially when they are encountered in specimens obtained by biopsy or curettage (2-5). The initial clue to the presence of a polyp is

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usually the admixture of fragments of a normal cyclical endometrium along with morphologically different fragments (2,3). Identification of tissue fragments containing irregular glands, dense or fibrous stroma or thick walled vessels whose appearances contrast with the surrounding endometrium suggests the presence of a polyp (1-3).

Recently, Kim et al described a histologic feature that could be useful in the diagnosis of endometrial polyps; the parallel arrangement of the long axes of endometrial glands to the surface epithelium (PGE) (2).

In this study, we examined PGE with various histologic features in grossly identifiable polyps from hysterectomy or polypectomy specimens and correlated the frequency of these features with variables such as menstrual state, histopathologic type, and shape of the polyps.

## **MATERIALS and METHODS**

Among 167 endometrial polyps diagnosed in the Department of Pathology, Baskent University Faculty of Medicine between 1999 and 2004, 71 polyps from hysterectomy or polypectomy specimens were selected. Polyps diagnosed in curettage and biopsy specimens and cases of adenomyomas were excluded.

Hematoxylin and eosin-stained sections of polyps were re-evaluated according to the diagnostic features such as thick-walled blood vessels, densely fibrous/collagenous stroma, hypercellular stroma of endometrial type, glandular irregularity, and the presence of surface epithelium in 3 sides. We also noted the presence of PGE.

Polyps were classified as sessile or pedunculated by shape and hyperplastic, functional, fibrous or mixed by histology as Kim et al. described in their study (2). Hyperplastic polyps contain actively proliferating, irregularly shaped glands in hypercellular endometrial-type stroma. A functional polyp refers to normal mid-secretory phase glandular pattern or deciduali-

zed stroma of the late secretory phase. Fibrous polyps have a dense collagenous stroma with mostly cystically dilated glands. Mixed polyps showed combinations of the above.

Data were analyzed using the statistical software package SPSS 11.0 for Windows. Chi-square test or Fisher's exact test was used to evaluate the diagnostic significance of each histologic variable according to the menstrual state, histopathologic type, and shape of the polyps. Differences were considered to be significant at  $p < 0.05$ .

## **RESULTS**

The mean age of the patients at diagnosis was 50 years (range, 23 to 80 years). Thirty nine out of 71 cases (54.9%) were premenopausal women. Most of the polyps were pedunculated (87.5%) and among those pedunculated, 53.2% were seen in premenopausal patients. However, there was no significant difference in the shape of the polyps obtained from premenopausal or postmenopausal patients. Seventy one cases comprised 32 (45.1%) hyperplastic, 8 (11.3%) functional, and 12 (16.9%) fibrous and 18 (25.4%) mixed polyps.

The most frequent histologic findings observed in both premenopausal and postmenopausal women were the presence of thick walled vessels and irregularly shaped glands (91.5% and 97.2%, respectively). In addition, we observed another histologic feature, that is parallel arrangement of the long axes of endometrial glands to the surface epithelium in 33 of 71 (46.4%) endometrial polyps. PGE was more common in polyps excised from premenopausal (56.4%) than in postmenopausal women (34.3%). PGE was found in 7 of 8 (87.5%) functional polyps, while 40.6% of hyperplastic, 50% of fibrous, and 38.9% of mixed polyps showed this characteristic feature (Figure 1). The association of PGE with functional polyps was statistically significant ( $p < 0.05$ ). In addition, twenty-nine of 33 (87.9%) polyps showing PGE were



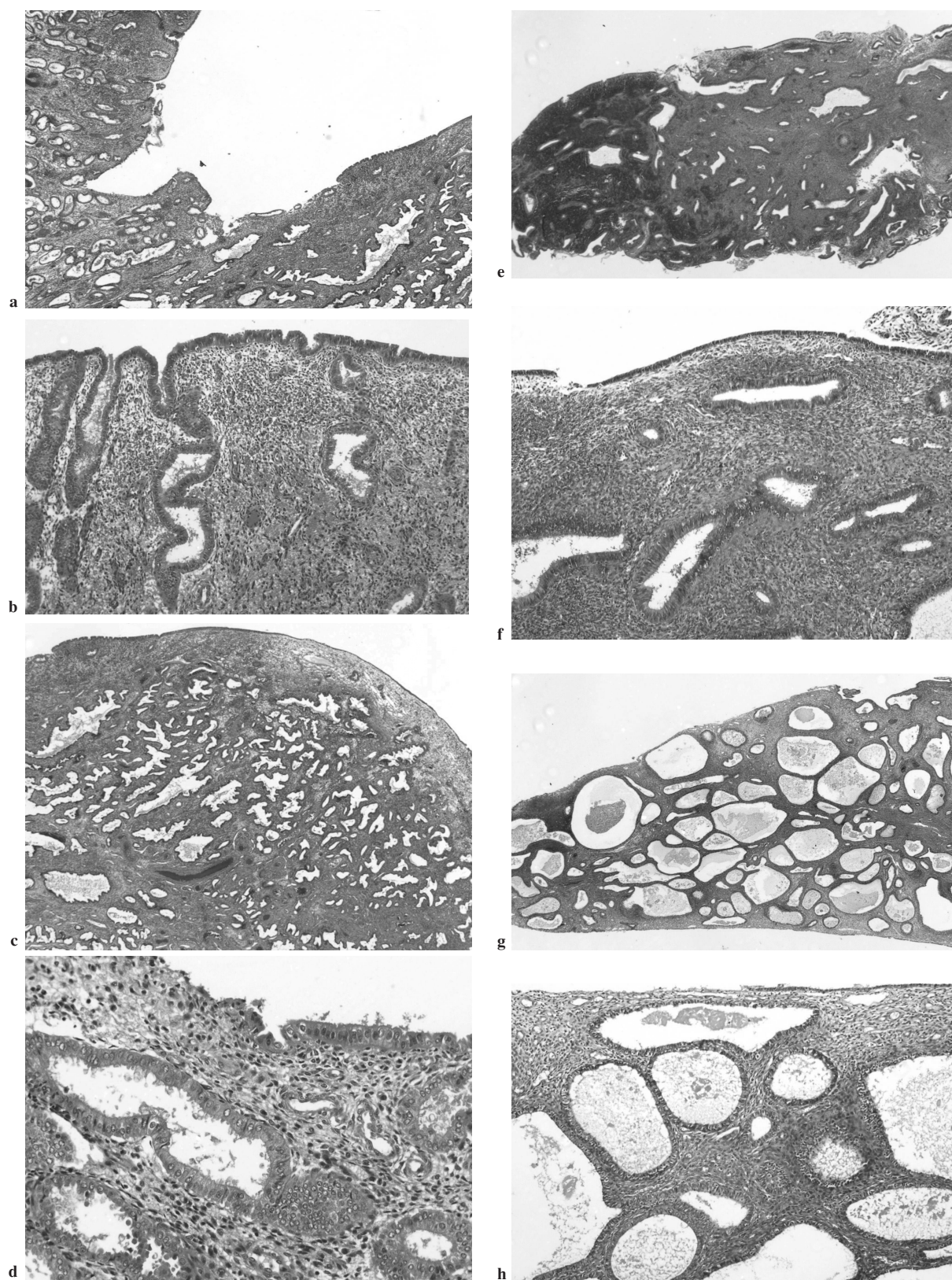


Figure 1. a-Endometrial polyp and the surrounding endometrium (HEEx10). b-Note the perpendicular arrangement of glands in normal endometrium (HEEx20). c-A functional polyp (HEEx10) and d-parallel arrangement of glands' long axes to the surface epithelium (PGE)(HEEx20). e-A hyperplastic polyp (HEEx10) and f-PGE (HEEx20). g-A mixed polyp (HEEx10) and h-PGE (HEEx20).

**Table 1. Diagnostic findings according to the menstrual state, shape and histologic types**

	Thick-walled vessels (n, %)	Hypercellular stroma (n, %)	Collagenous stroma (n, %)	Glandular irregularity (n, %)	Parallel growth (PGE) (n, %)
<b>Menstruel state</b>					
Premenopausal	36 (92.3)	29 (67.4)	6 (15.4)	37 (94.9)	22 (56.4)
Postmenopausal	29 (90.6)	14 (32.6)	24 (75)	32 (100)	11 (34.4)
<b>Shape</b>					
Sessile	6 (66.6)	4 (44.4)	3 (33.3)	8 (88.8)	4 (44.4)
Pedunculated	59 (95.1)	39 (62.9)	27 (43.5)	61 (98.3)	29 (46.8)
<b>Histologic type</b>					
Hyperplastic	29 (90.6)	30 (93.8)	0	31 (96.9)	13 (40.6)
Functional	8 (100)	0	1 (12.5)	7 (87.5)	7 (87.5)*
Fibrous	11 (91.7)	0	12 (100)	12 (100)	6 (50)
Mixed	16 (88.9)	12 (66.7)	16 (88.9)	18 (100)	7 (38.9)

\*Incidence of PGE was significantly associated with the incidence of functional polyps ( $p<0,05$ , chi-square test).

**Table 2. Incidence of PGE by menstrual state and polyps' morphology**

Menstruel state	Morphological characteristics			p*
	PGE	Sessile (n, %)	Pedunculated (n, %)	
Premenopausal	-	4 (56)	13 (21)	p=0.284
	-	2 (22)	20 (32)	
Postmenopausal	+	1 (11)	20 (32)	p=0.483
	-	2 (22)	9 (15)	
Total	+	9	62	

\*Fisher's exact test.

pedunculated (Table 1). There was no significant difference between the shape of the polyps and PGE in premenopausal and postmenopausal patients ( $p>0.05$ ) (Table 2).

## DISCUSSION

In curettage specimens, where only fragments of the polyps are obtained, the diagnosis can be difficult to make (2-5). A stroma composed of spindle (fibroblast-like) cells with abundant extracellular connective tissue, and large blood vessels with thick walls usually help in the diagnosis of an endometrial polyp (1-3).

Recently, Kim et al. described a new characteristic feature that might be useful in the diagnosis of polyps, namely, endometrial glands that grow parallel to each other with their long axes also paralleling to the elongate sides of a pedunculated polyp (2).

In our study, 33 of 71 (46.4%) cases showed this characteristic feature. PGE was more prominent in pedunculated or functional polyps in premenopausal women when compared with sessile or other types of polyps in postmenopausal women. Our findings are consistent with the results of Kim et al. (2). When we consider that endometrial glands normally grow with their long axes perpendicular to the mucosal lining of the endometrial cavity, identifying glands with axes paralleling to the mucosal surface might be very helpful for diagnosing polyps.

In conclusion, the presence of thick walled vessels is the most frequently identified and reliable histologic feature in endometrial polyps, PGE, when present, could be an additional clue in the diagnosis of endometrial polyp in routine curettage specimens.

## Abbreviation

PGE: Parallel arrangement of the long axes of endometrial glands' to the surface epithelium

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