The histopathological and dermoscopic correlation of primary cutaneous mucinous carcinoma

Sir,

Primary cutaneous mucinous carcinoma is a rare neoplasm of the skin, which was first described by Lennox *et al.* in 1952.[1] The clinical presentation of primary cutaneous mucinous carcinoma is a solitary, asymptomatic reddish or gray-blue nodule, which is often located on the face and scalp. In the present study, we enrolled four cases diagnosed as primary cutaneous mucinous carcinoma with dermoscopic examination in Chang Gung Memorial Hospital, Taoyuan, Taiwan from 2013 to 2018.

Case 1

A 49-year-old woman presented with a 6-month history of a single, slowly enlarging, tender, ulcerative, erythematous tumor on her scalp [Figure 1a]. Dermoscopic examination showed a translucent gray area with scattered milky-red and purplish globules separated by whitish structures. Linear irregular vessels were also noted in the whitish structures [Figure 1b]. Histopathological examination revealed a tumor nodule occupying the dermis and subcutis, which contained lobules of tumor nests in mucinous pools. Intratumoral hemorrhage in some tumor lobules and proliferative blood vessels within the fibrous septa were also present [Figures 1c and d]. Immunohistochemistry was done as demonstrated in in Figures 1e.

Case 2

A 64-year-old woman had one non-tender, slowly growing, erythematous nodule on her left lower eyelid for 2 years [Figure 2a]. Dermoscopy revealed translucent gray globules encircled with grayish-white areas in an arch-like pattern and linear irregular vessels located peripherally. In addition, focal brownish area was also noted [Figure 2b]. Microscopic findings showed a nodule of cribriform glands with focal mucin production and blood vessels growing in fibrous septa [Figure 2c]. Perivascular hemosiderin deposition was present in the upper dermis [Figure 2d]. Immunohistochemistry done is shown in Figures 2e-g]

Case 3

A 49-year-old man presented with a slowly growing, nontender, brownish translucent nodule on his left temple for 2 to 3 years [Figure 3a]. Dermoscopic examination showed multiple translucent gray area, clusters of whitish cloud-like structure, purplish globules, as well as scattered brownish areas [Figure 3b]. Histopathology showed a dermal nodule composed of cribriform epithelial cells in mucin lakes. Massive intratumoral hemorrhage with hemosiderin deposition in the superficial part of the tumor was noted. Some of fibrous septa were ruptured and the debris floated in mucin pools [Figure 3c].

Case 4

A 48-year-old man had one slowly growing, nontender, translucent erythematous nodule on his left cheek for 5 years [Figure 4a]. Dermoscopy showed multiple translucent gray area and pinkish globules separated by whitish halo-like structures, focal purplish globules, as well as short, linear, irregular and dotted vessels [Figure 4b]. Histopathology revealed a dermal nodule composed of tumor nests with glandular lumina in pools of mucin separated by fibrous strands. Proliferative dilated blood vessels surrounding the tumor and intratumoral hemorrhage in some tumor nests were also shown microscopically [Figure 4c]. Immunohistochemistry was demonstrated in Figures 4d.

The characteristics and correlation of dermoscopic and histopathological findings are summarized in Tables 1 and 2. All the patients had undergone computed tomography and/or positron emission tomography, and metastasis from other organs was excluded. In our series, case 3 underwent Mohs

Table 1: The characteristics of dermoscopic and histopathological findings

Case	Age	Gender	Location	Dermatoscopic findings						
				Translucent gray area/globules	Pinkish globules	Whitish structure	Milky-red to purplish globules	Linear irregular vessel	Dotted vessels	Brownish area
1	49	Female	Scalp	+	-	+	+	+	-	-
2	64	Female	Face	+	-	+	-	+	-	+
3	49	Male	Face	+	-	+	+	-	-	+
4	48	Male	Face	+	+	+	+	+	+	-

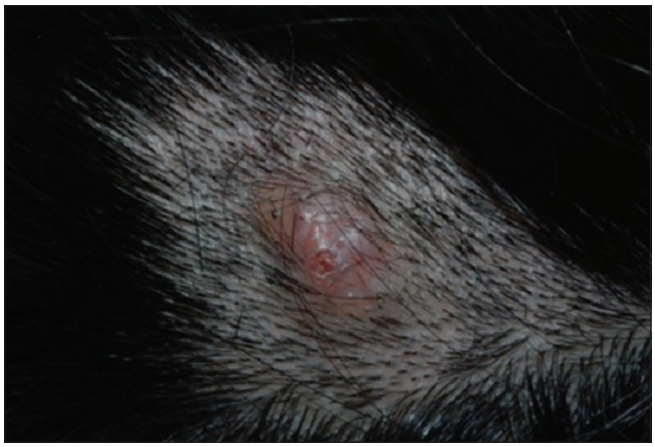

Figure 1a: Ulcerative erythematous nodule on the scalp

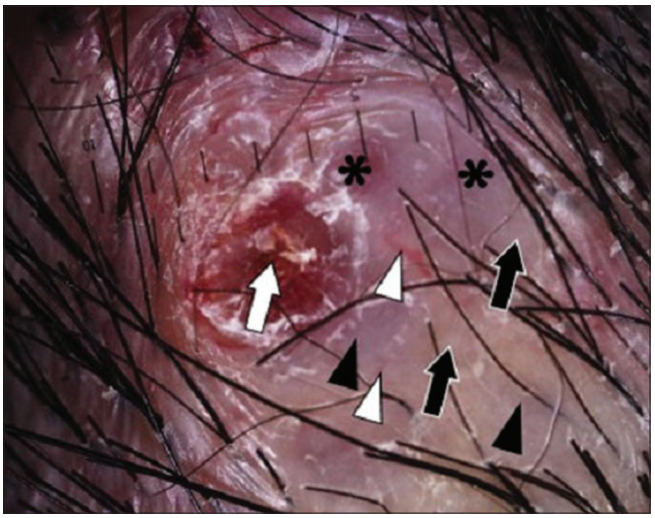

Figure 1b: Dermoscopy revealed translucent gray area (*black arrowheads*) with focal milky-red and purplish globules (*asterisks*), whitish structure (*black arrow*), and linear irregular vessels (*white arrowheads*). In addition, ulceration (*white arrow*) and white surface scale were also noted (polarized, ×100, HEINE DELTA® 20 T Dermatoscope, HEINE Optotechnik GmbH and Co. KG, Herrsching, Germany)

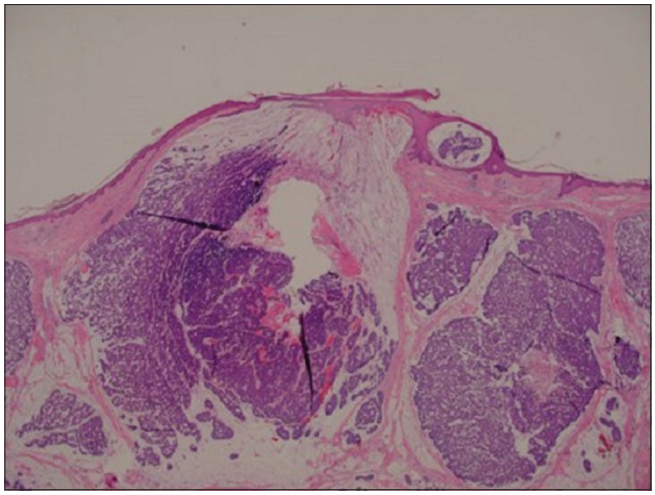

Figure 1c: Intratumoral hemorrhage in one tumor nest (hematoxylin and eosin, ×200)

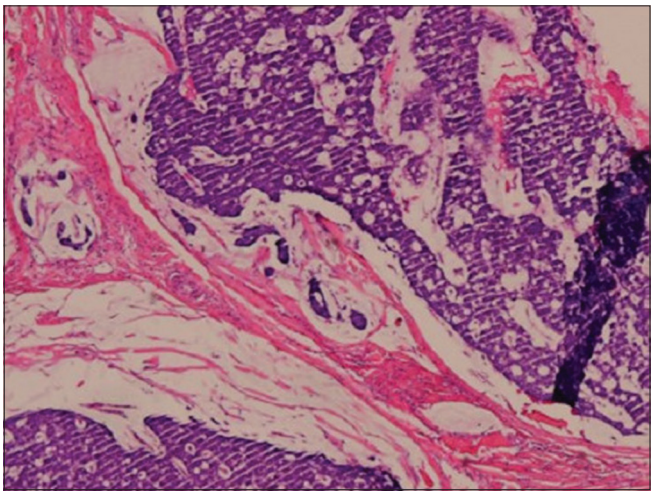

Figure 1d: Proliferative blood vessels within the fibrous septa (hematoxylin and eosin, ×100)

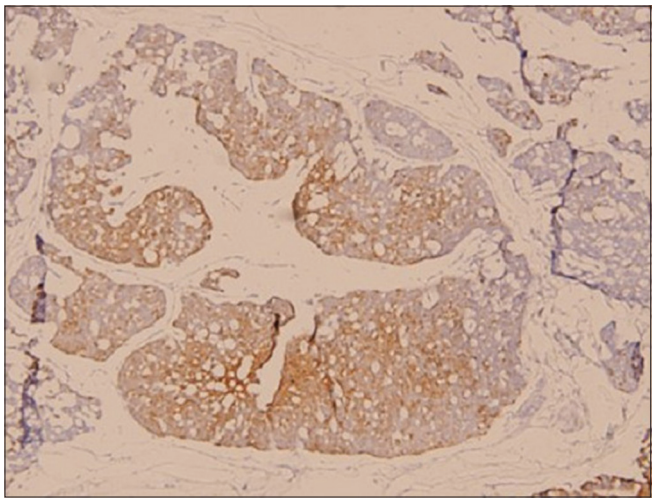

Figure 1e: The tumor cells were positive for cytokeratin-7 (CK7, ×100)

micrographic surgery whilst others received wide local surgical excision. No recurrence was observed during the follow-up for at least 6 months.

Primary cutaneous mucinous carcinoma is a rare, slow-growing tumor with indolent clinical course.[2] The characteristic pathological changes are tumors with pools of mucin divided by thin fibrous septa. The neoplastic epithelial cells in mucin lakes resemble "floating islands." The diagnosis of primary cutaneous mucinous carcinoma should be differentiated from metastasis of mucinous adenocarcinoma from other organs because microscopic findings of both are often indistinguishable.[3]

In the present case series, we found that the consistent dermoscopic findings of primary cutaneous mucinous

Figure 2a: Erythematous nodule on the left lower eyelid

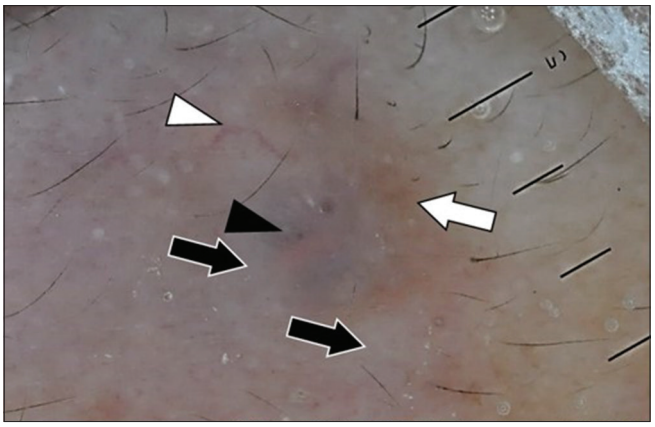

Figure 2b: Dermoscopy showed translucent gray globules (*black arrowhead*) encircled with grayish-white areas in an arch-like pattern (*black arrow*) and linear irregular vessels (*white arrowhead*) located peripherally. In addition, focal brownish area was also noted (*white arrow*) (polarized, ×100, HEINE DELTA® 20 T Dermatoscope, HEINE Optotechnik GmbH and Co. KG, Herrsching, Germany)

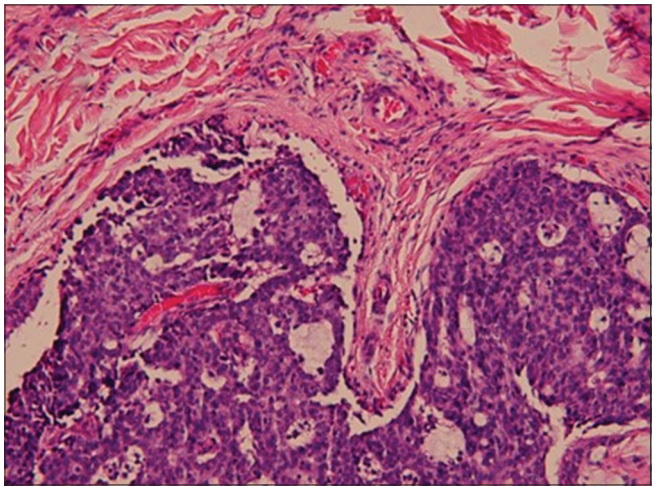

Figure 2c: Cribriform glands with focal mucin production and blood vessels growing in fibrous capsules (hematoxylin and eosin, ×200)

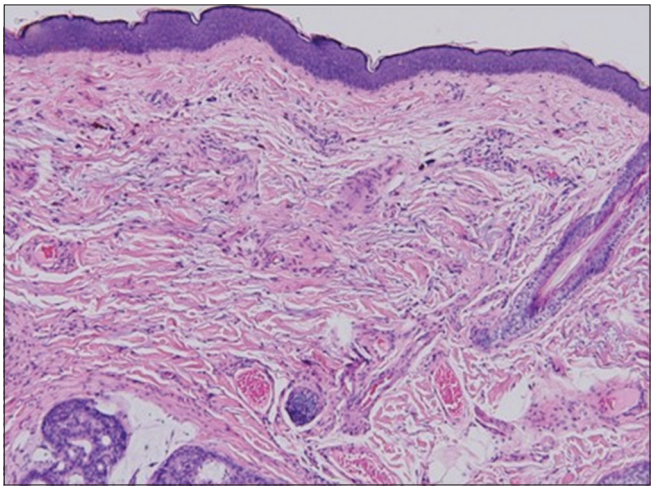

Figure 2d: Perivascular hemosiderin deposition in the upper dermis (hematoxylin and eosin, ×200)

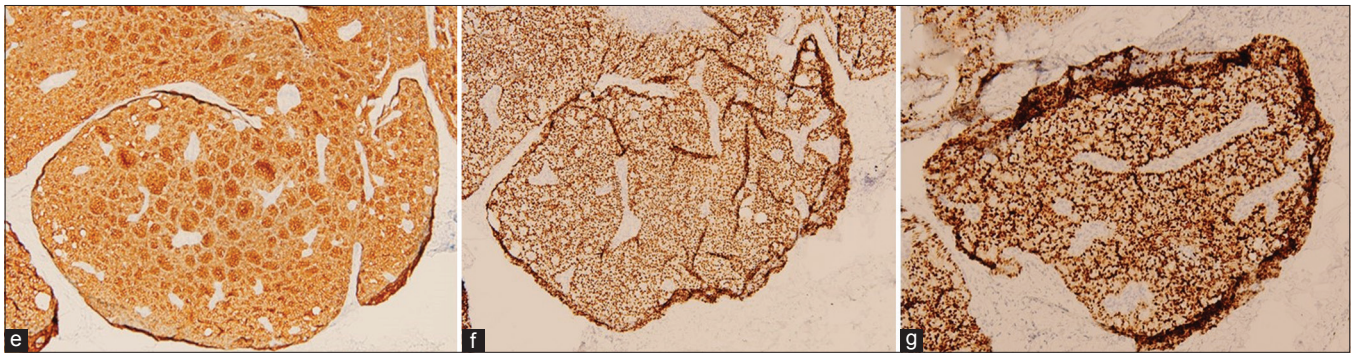

Figure 2: (e) The tumor cells were positive for cytokeratin-7 (CK7, ×100). (f) The tumor cells were positive for estrogen receptor (ER, ×100). (g) The tumor cells were positive for progesterone (PR, ×100)

Figure 3a: One brownish translucent nodule of the left temple

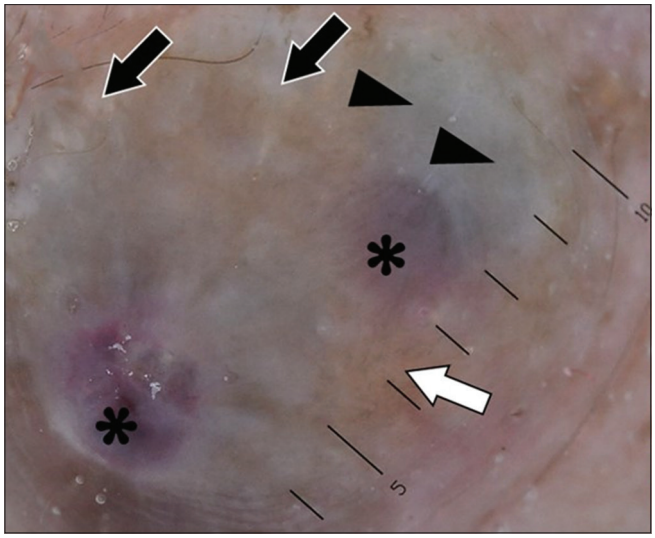

Figure 3b: Dermoscopy revealed translucent gray area (*black arrowhead*), whitish structures (*black arrow*), purplish globules (*asterisks*), and scattered brownish area (*white arrow*) (polarized, ×100, HEINE DELTA® 20 T Dermatoscope, HEINE Optotechnik GmbH and Co. KG, Herrsching, Germany)

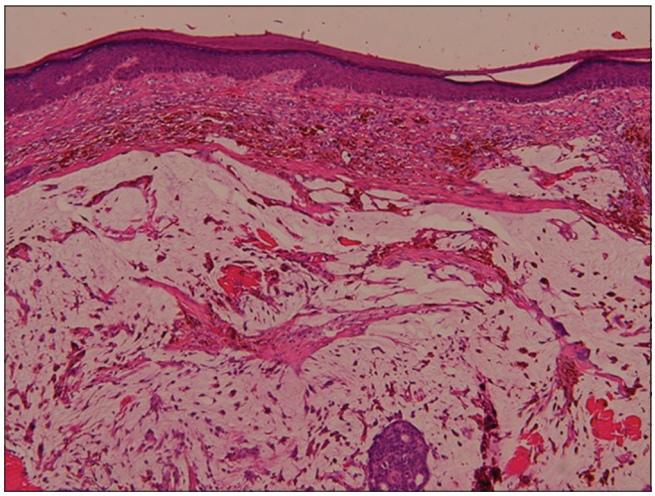

Figure 3c: Prominent hemorrhage, hemosiderin and ruptured fibrous septa in mucin pools of superficial part of the tumor (hematoxylin and eosin, ×200)

Table 2: The correlation of dermoscopic and histopathological findings

Dermatoscopic findings	Histopathological findings
Translucent gray area/globules and pinkish globules	Tumor nests in mucinous pools
Whitish structure	Fibrous septa
Milky-red to purplish globules	Intratumor hemorrhage
Linear-irregular and dotted vessels	Vessels growing in fibrous septa or capsules
Brownish area	Hemosiderin deposition

carcinoma were translucent gray globules or area as well as whitish structures. The translucent gray globules were correlated with the tumor nests in mucin pools. The whitish structure was associated with the fibrous septa within the tumor or the fibrous capsule surrounding the tumor. It was mainly a halo-like structure since the fibrous septa were intact in most cases. In case 3, the floating fibrous debris in mucin pools caused cloud-like appearance of whitish structure.

In addition, we found that the main dermoscopic vascular morphology of primary cutaneous mucinous carcinoma was linear irregular pattern which has not been earlier described.[4,5] The vascular pattern was correlated with the vessels growing in fibrous septa or capsules. Besides, dotted vascular pattern was also noted in case 4, which may be associated with the focal vertical growth of blood vessels surrounding the tumor. The purplish globules and brownish areas in dermoscopic examination may be associated with the intratumoral hemorrhage and hemosiderin deposition, respectively. The secondary pathological changes of the primary tumor may cause diverse dermoscopic manifestations.

The present case series demonstrated that translucent gray globules or area, linear irregular vascular pattern, as well as whitish structure were the characteristic dermoscopic findings of primary cutaneous mucinous carcinoma. Dermoscopy may be a useful tool to help the physician diagnose this rare entity.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Figure 4a: One translucent erythematous nodule on his left cheek

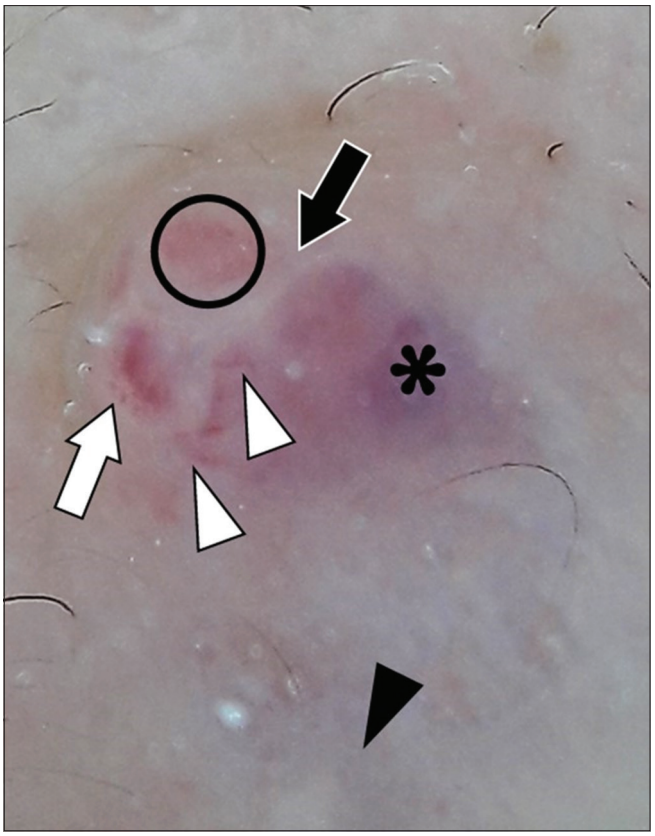

Figure 4b: Dermoscopy showed translucent gray area (*black arrowhead*), pinkish globules (*black circle*), whitish structure (*black arrow*), purplish globules (*asterisk*), short linear irregular vessels (*white arrowheads*) and dotted vessels (*white arrow*) (polarized, ×100, HEINE DELTA® 20 T Dermatoscope, HEINE Optotechnik GmbH and Co. KG, Herrsching, Germany)

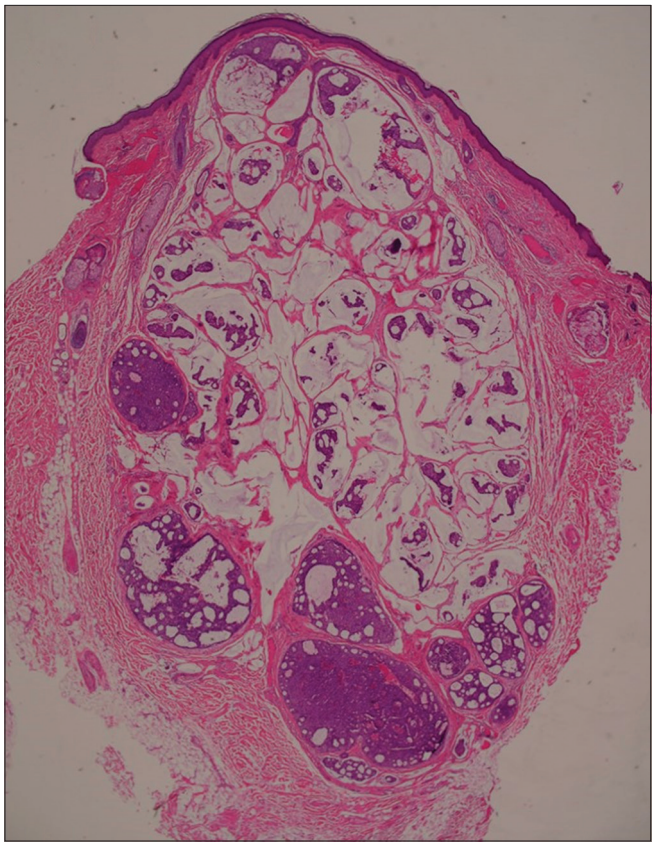

Figure 4c: Proliferative dilated blood vessels surrounding the tumor and intratumoral hemorrhage in some tumor nests (hematoxylin and eosin, ×20)

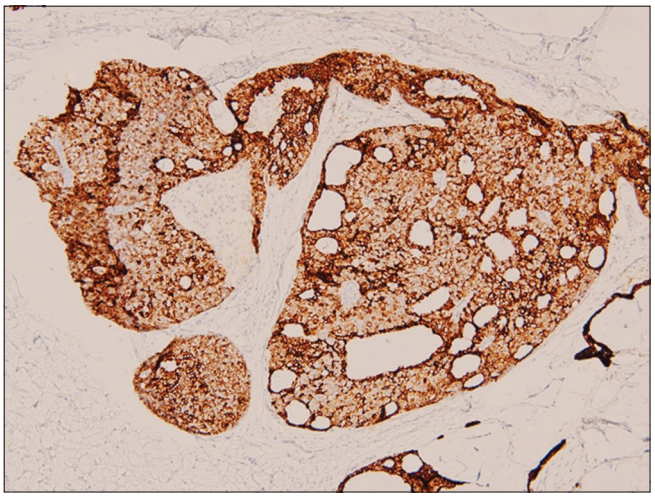

Figure 4d: The tumor cells were positive for cytokeratin-7 (CK7, ×100)

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Access this article online	
Quick Response Code:	Website: www.ijdvl.com
	DOI: 10.4103/ijdvl.IJDVL_286_18

How to cite this article: Cheng CY, Huang YL, Kuo TT, Hu S. The histopathological and dermoscopic correlation of primary cutaneous mucinous carcinoma. Indian J Dermatol Venereol Leprol 2019;85:215-20.

Received: May, 2018. **Accepted:** November, 2018.