Findings that shed new light on the possible pathogenesis of a disease or an adverse effect

Mature embryoid teratoma in the wall of a mucinous cyst adenoma of ovary in multiparous female

Mohammed Naim,¹ Nazima Haider,¹ Vanesa T John,¹ Seema Hakim²

¹Department of Pathology, JNMC AMU, Aligarh, Uttar Pradesh, India;

²Department of Obstetrics and Gynaecology, JNMC, AMU, Aligarh, Uttar Pradesh, India

Correspondence to Nazima Haider, nazima_haider@yahoo.com

Summary

A collision tumour in ovary comprising a small ovoid embryoid mature teratoma in the surface wall of large mucinous cyst adenoma is reported in a 36-year-old female and its pathogenesis is discussed. The oval teratoid mass externally to the mucinous cyst lining did not show any columnar epithelial or mucin-secreting cyst. Findings suggested that the mature embryoid teratoma originated from ovarian germ cell rest in the surface wall of the cyst adenomatous neoplasm. Another possibility could be that the mature embryoid teratoma resulted from parthenogenesis of ovum together with the mucinous adenoma cysts by epithelial metaplasia of the follicular lining.

BACKGROUND

Histologically distinct tumours sometimes coexist in the same organ and are described as collision tumours. Teratoma in collision with mucinous cyst adenoma in the ovary has been quite well known. However, the cases found in the literature reported cystic teratoma of grown-up sizes of more than few centimetres in collision with mucinous cyst adenoma,¹ and pathogenesis of the teratomatous adenomatous collision tumour in the ovary remained controversial and poorly understood.¹⁻² Here, we report a case of a small ovoid embryoid mature teratoma in the surface wall of a large mucinous cyst adenoma of the ovary in a multiparous female and also discuss its pathogenesis.

CASE PRESENTATION

A 36-year-old, para 6+0, female presented with complaints of gradual onset pain and lump in the abdomen for the past 6 months. Her menstrual history was normal. On clinical examination, a mobile tender adnexal mass was felt on the left side. Abdomen was soft and free of any effusion. Routine urine examination and the haematological profile of the patient were unremarkable except for mild anaemia (haemoglobin – 9.2 g/dl). Ultrasonography revealed multiloculated, cystic left ovarian mass measuring 12 × 12 × 9 cm. The right ovary was normal.

On gross examination, tumour measured 12 × 10 × 9 cm in size. The outer surface was shiny greyish white in colour and bosselated with cyst impressions. Cut surface (figure 1) revealed multiloculated cysts filled with creamish yellow mucin. Through the lumen of a mucin-filled cyst, an oval, whitish, firm, teratoid mass measuring 0.6–1 cm in diameter in different planes (arrow tip) was observed located in the thick outer surface wall of the cyst adenoma. The residual left ovary was not identifiable in the tumour mass.

Sections from the tumour showed multiple cysts lined by single layer of mucin-secreting tall columnar cells consistent with the mucinous cyst adenoma of the ovary

(figure 2A). Sections from the cystadenoma surface wall with teratoid mass showed columnar mucinous cyst lining and on its exterior, thyroid, cartilage, salivary, neural and epidermal tissues (figure 2B,C) of the normal embryonic appearances in an oval mass, without well-formed organs or fetus.³ The oval teratoid mass, externally to the mucinous cyst lining, did not show any columnar epithelial or mucin-secreting cyst nor evidence of ossification of the cartilage.

OUTCOME AND FOLLOW-UP

Will be reported.

DISCUSSION

Findings in this case were diagnostic of left ovarian mucinous cyst adenoma with a small oval embryoid mature teratoma in its external surface wall. Mucinous cyst adenoma in collision with mature teratoma ovary where the two adjacent tumours coexisted as histologically distinct entities without admixing have been well known to occur in the ovary.¹⁻² Such ovarian teratomatous cystadenomatous collision tumours are often unilateral, vary from 2 to 200 cm in size and occur in the age group of 17–66 years.⁴ Presently, the patient was a 36-year-old multiparous female and presented with a unilateral tumour 12 cm in size.

In the previous reported cases of the ovarian teratomatous cystadenomatous collision tumours, the mature teratoma components were observed to be cystic (dermoid) and it was believed that the mucinous cyst adenoma in collision with teratoma originated from the epithelium of the mature cystic teratoma.⁵ However, the exact pathogenetic relationship between these two lesions remained unanswered.^{1-2,5} In this case, collision tumour in the ovary comprised an oval embryoid mature teratoma of about 1 cm size in the surface wall of the mucinous cyst adenoma. Although the teratoma constituent tissues were mature resembling those of the ovoid human embryo at 16 weeks,

Figure 1 Cut surface showing mucinous cyst adenoma of the ovary with an oval teratoid mass of less than 1 cm diameter seen through lumen of a mucinous cyst (arrow).

Figure 2 Section showing lining of adenomatous mucinous cyst: (A) H&E $\times 100$, mucin secreting columnar epithelium of the cyst adenoma (right upper corner) and the embryoid teratomatous tissues including hair follicle and sebaceous gland on exterior of columnar mucinous lining; (B) H&E $\times 40$ and (C) H&E $\times 120$.

without calcified bone nor complete organs or fetus,³ many tissues including the gastrointestinal epithelium were also conspicuously absent. Hence, the oval teratoid mass in this case was not definable as ovoid-embryo, fetus or dermoid cyst, and was identifiable as a teratoma of the ovoid (16

weeks) embryoid of mature type, implying mature tissues minus that of the earlier or later weeks than the 16-week embryoid, minus organ formation. These observations in the present case may provide material for classifying teratoma in future studies.

Learning points

- ▶ Collision tumour in ovary may have ovarian mucinous cyst adenoma with mature embryoid teratoma in surface wall of the adenomatous mucinous cyst.
- ▶ In a collision tumour as presently, possibility may be that the mature embryoid teratoma originated from ovarian cell rest in the surface wall of the cyst adenomatous neoplasm.
- ▶ Another possibility could be that the mature embryoid teratoma resulted from parthenogenesis of ovum together with the mucinous adenoma cysts by epithelial metaplasia of the follicular lining.

In the present collision tumour of 6 months duration, its main component was a large mucinous cyst adenoma. Findings, in this case, of an oval small size teratoma not having mucinous epithelial constituents and its boundary having anatomic distinction from the mucinous lining of cystadenoma, were not affirmative of the view of mucinous cyst adenoma in collision originating from epithelial gut element of the teratoma.^{5 6} Also, the teratoma, since externally to the mucinous cyst lining and not admixed with the columnar epithelium of mucinous cystadenoma, could not be defined by germ cell metaplasia of mucinous cyst lining.

Teratoma is a known germ cell neoplasm whereas origin of mucinous cyst adenoma is explained by 'metaplasia' of the ovarian surface epithelium.^{5 6} In a collision tumour

where the two tumours coexisted together as presently, possibility was that the teratoma originated from ovarian germ cell rest⁷ in the wall of the cyst adenomatous neoplasm. Another possibility could be that the mature embryoid teratoma resulted from parthenogenesis of ovum evolved in a graffian follicle which failed to rupture,⁸ together with the mucinous adenoma cysts by 'epithelial metaplasia'⁴ of the follicular lining.

Competing interests None.

Patient consent Obtained.

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