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Warthin's Tumor: A Rare Case Report of a Bilateral Multifocal Parotid Tumor Associated with an Ectopic Tumor

Tumor de Warthin: Apresentação de um Caso Raro de um Tumor Parotídeo Bilateral Multifocal em Associação a um Tumor Ectópico

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ABSTRACT

Warthin's tumor is the second most common benign neoplasm of the parotid gland and frequently presents with multifocal and bilateral involvement, either synchronously or metachronously, up to 20% - 30% of cases. More rarely, extraparotid locations may also occur. This case report describes a Warthin's tumor presenting synchronously as a multifocal bilateral parotid tumor in association with an extraparotid localization, which, according to the existing literature, appears to be a rare event. This low incidence is likely underestimated and could be explained by several reasons. Increased awareness of this potentially higher incidence may aid physicians in better evaluating and treating their patients.
Keywords: Adenolymphoma; Parotid Neoplasms

RESUMO

O tumor de Warthin é o segundo tumor benigno da parótida mais comum e apresenta envolvimento multifocal e bilateral (síncrono ou metácrono) em até 20% - 30% dos casos. Mais raramente pode ter localização extraparotídea. Descreve-se o caso de um tumor parotídeo multifocal bilateral e síncrono em associação a um tumor extraparotídeo, um caso raro segundo a literatura existente. Esta baixa incidência está, provavelmente, subestimada e pode ser explicada por vários motivos. O seu reconhecimento pode ajudar a comunidade médica a melhor avaliar os seus doentes e orientar o seu tratamento.
Palavras-chave: Adenolinfoma; Neoplasias da Parótida

INTRODUCTION

Warthin's tumor (WT), also known as papillary cystadenoma lymphomatosum, is the second most common benign neoplasm of the parotid gland, following pleomorphic adenoma.[1]

There is a male predominance, with the mean age at diagnosis between the fifth and the seventh decades.[1] These tumors occur predominantly in the parotid gland and its lymph nodes, and have frequent multifocal and bilateral involvement (synchronous or metachronous), up to 20% - 30% of cases.[2] More rarely, extraparotid localizations may also occur.[3] Malignant transformation is extremely rare.[2]

Herein we describe the rare case of a synchronous bilateral multifocal parotid Warthin's tumor associated with an extraparotid WT.

CASE-REPORT

A 46-year-old man presented to the emergency department with a history of left neck swelling over the past five years and a rapid increase in size over the previous three days. The patient was subfebrile. Physical examination revealed a warm and painful mass in the left carotid triangle, measuring 4 x 5 cm. A contrast-enhanced computed tomography (CT) scan demonstrated a well-circumscribed neoplasm measuring 4 x 3 x 3 cm, located anterior to the sternocleidomastoid muscle, suggestive of an infected second branchial cleft cyst. Additionally, the CT scan revealed multiple bilateral parotid lesions.

With a suspected infected second branchial cyst, the patient was hospitalized for intravenous antibiotic treatment, with the resolution of the acute infection. Unexpectedly, fine needle aspiration cytology showed lymphocytes and dispersed oncocytic cells, suggesting a diagnosis of Warthin's tumor. The cytological examination of the lesions in both parotid glands confirmed the same diagnosis.

Two months later, a right superficial parotidectomy with facial nerve dissection was performed. Histological examination was consistent with WT (Fig. 1). Six months after the initial episode, surgical excision of the left cervical mass was planned. The incision was positioned over the lesion and subplatysmal flaps were elevated. The anterior border of the sternocleidomastoid muscle was identified and retracted laterally. The mass was carefully dissected from deep structures, including the internal and external carotid arteries, as well as the glossopharyngeal and hypoglossal nerves. No tract towards the

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oropharynx was identified. A mass consisting of two connected nodules was removed, the larger measuring approximately 4 x 2.5 cm and the smaller about 2 x 1 cm. The histopathological examination revealed WT in both nodules (Fig. 2). After a 16-month follow-up, no signs of recurrence were observed in either lesion.

The WT in the left parotid was not resected and is currently under close observation (Fig. 3).

DISCUSSION

The pathogenesis of Warthin's tumor remains controversial. Many theories have been put forward, but only two have persisted. The most favored hypothesis is the heterotopia hypothesis, which suggests that WT arises from epithelial inclusions in intra- or peri-parotid lymph nodes. This happens as epithelial cells migrate from the oral mucosa into the lymphoid tissue during parotid gland embryogenesis. Due to the absence of a complete capsule, the precursors of the salivary duct-acinar system become entrenched within the lymphoid component. This results in the existence of intraparotid lymph nodes and heterotopic salivary gland remnants entrapped in the parotid lymph nodes.[4] This hypothesis also explains the almost exclusive occurrence of WT in the parotid gland and its related lymph nodes. According to the second theory, WT may constitute an adenoma followed by intense lymphocytic infiltration of the stroma.[5]

Another topic of debate is whether WT occurs as a true neoplasia or rather a reactive oncocytic metaplasia, given that both the epithelial component and lymphocytic infiltrations are polyclonal.[6] Either way, it seems to be triggered by various pathogenetic factors, including environmental, immunologic, viral, and genetic events.

Smoking seems to be an important etiological factor, as a notable number of patients are smokers,[7] in contrast to those with other salivary gland neoplasms. The association between WT and autoimmune disease has also been hypothesized, possibly as a form of delayed hypersensitivity type reaction, supported by the detection of viruses such as Epstein-Barr virus DNA or human herpesvirus 8 DNA in tumor cells.[8] Finally, despite strong evidence supporting a polyclonal origin, some studies have identified a clonal subset of WT arising from the CRTC1-MAML fusion oncogene, which may predispose to malignant transformation.[9]

Bilateral tumors occur in 4% - 27% of cases,[1,2] predominantly metachronous, while multifocal tumors are observed in 6% - 30% of cases.[1,4] These characteristics – the bilaterality and the multicentric nature of WT – can be explained by the aforementioned hypothesis of heterotopia.

Multifocal tumors involving both parotid glands are particularly rare. Xu *et al*, in a retrospective study of 1084 WT cases, found bilateral multifocal tumors in 0.65% of patients.[1] More recently, Maiorano *et al* identified 6.4% out of 78 patients.[4]

Additionally, ectopic neoplasms have also been reported, accounting for 8% of cases, mainly in cervical lymph nodes, the larynx and the submandibular gland.[1] Once again, the hypothesis of heterotopia also justifies the rare extraparotid location of WT.

Nonetheless, the occurrence of bilateral synchronous multifocal parotid WT in association with an extraparotid WT, as in this case, seems to be an even more uncommon event, with few reports available in the literature.[3] However, this low incidence is surprising given its pathogenesis and is probably explained by several reasons. First, WT can be partially surgically removed, leaving other clinically undetectable small WTs in the gland. This can lead to a second WT in the same gland being diagnosed as a recurrence once it becomes clinically evident. Additionally, histopathological evaluations may miss small multiple WTs if whole-specimen sectioning is not performed. Moreover, a second contralateral WT can be misinterpreted as an independent tumor if the patient's previous medical history is unknown. Finally, asymptomatic extraparotid WT may go unnoticed, unless incidentally discovered during a CT scan.

After a 16-month follow-up, no signs of recurrence of either lesion were observed. The patient opted for conservative management with close observation of the left parotid, which may be a reasonable approach given the low risk of malignancy and the considerable risk of iatrogenic facial nerve injury.[10]

CONCLUSION

Bilateral multifocal parotid WT in association with an extraparotid WT is a rare event. However, its overall prevalence, isolated or in association, may increase with careful workup. Awareness of this potentially higher incidence may help physicians better assess their patients and guide their treatment.

AUTHOR CONTRIBUTIONS

JCS, SR: Data collection, writing of the manuscript.
NT: Writing of the manuscript.
NR: Critical review of the manuscript.

All authors approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in 2013.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

PATIENT CONSENT

Obtained.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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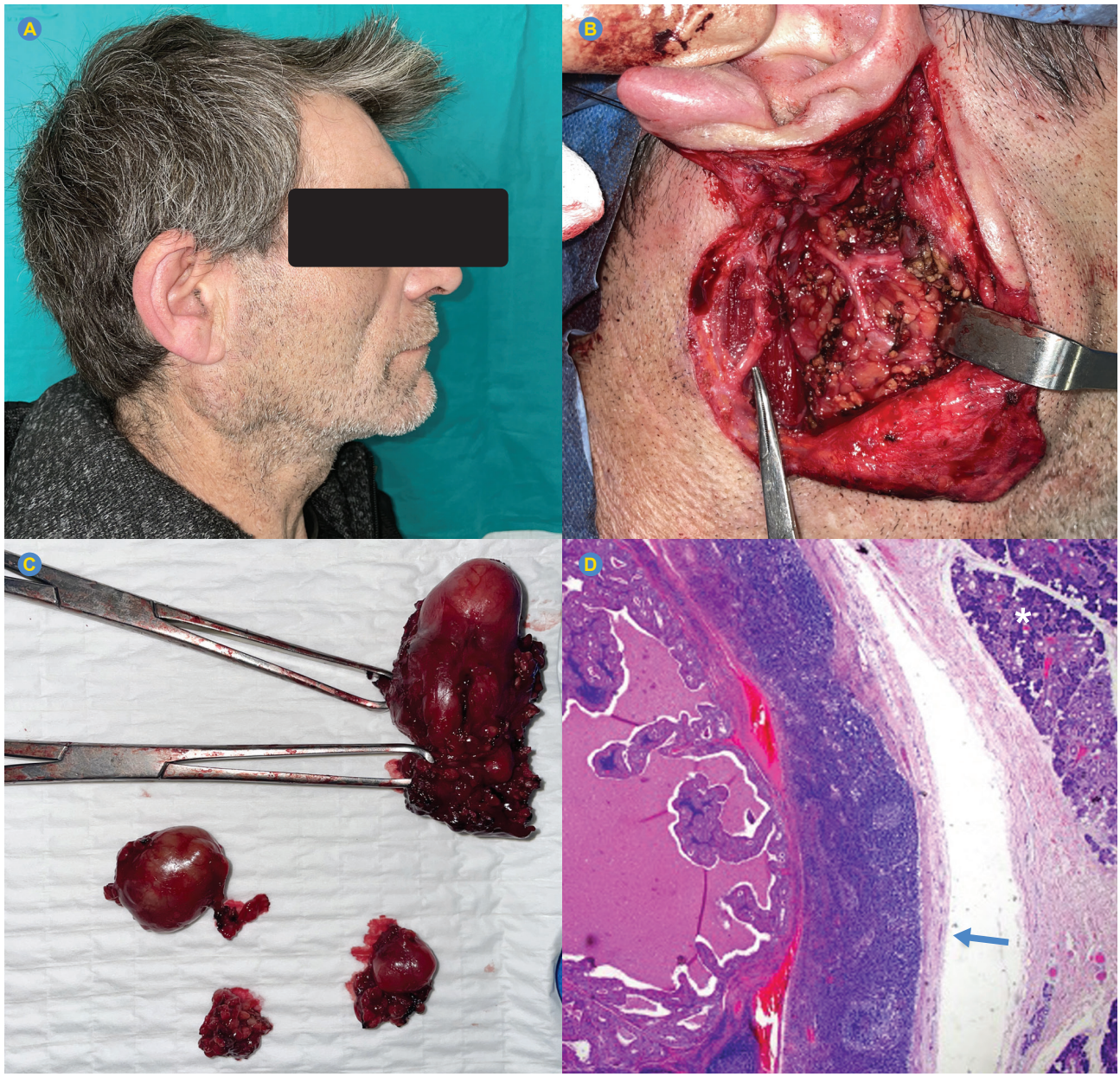

Figure 1 – Pre-operative photo of right parotid tumor (A). Right deep parotid lobe and facial nerve after tumor removal (B). Right parotid tumor consisting of multifocal nodules (C). Pathological examination: well demarcated tumor (arrow) with adjacent parotid gland (*) (D).

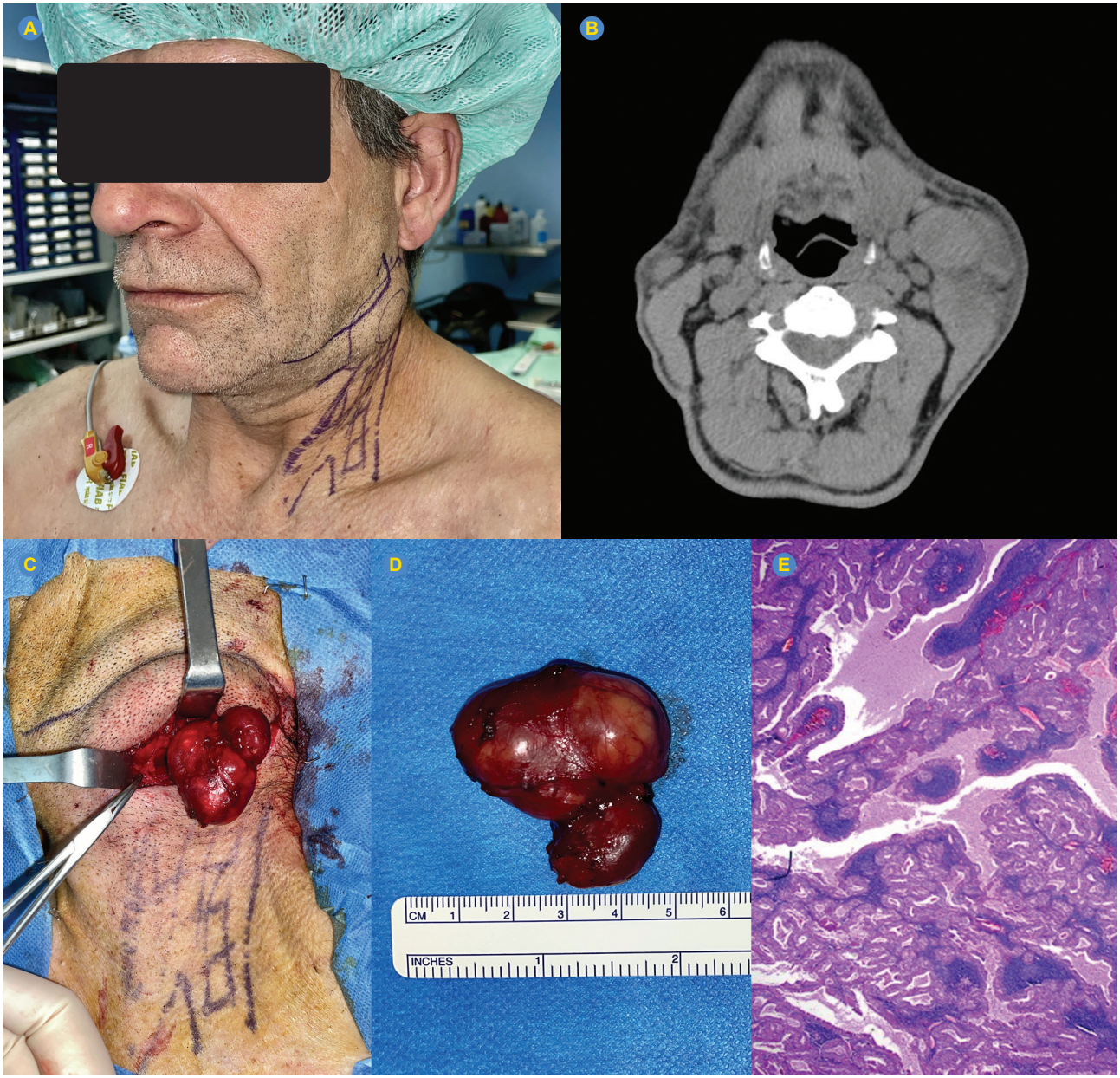

Figure 2 – Pre-operative photo of extra-parotid tumor on left carotid triangle (A). CT image showing a left cervical neoplasm measuring 4 x 3 x 3 cm, located anteriorly to the sternocleidomastoid muscle, suggesting an infected second branchial cleft cyst (B). Extra-parotid tumor prior its removal (C). Extra-parotid lesion consisting of two connected nodules (D). Pathological examination: papillary structures lined by bilayered oncocytic epithelial cells and surrounded by a lymphoid stroma, consistent with Warthin's tumor (E).

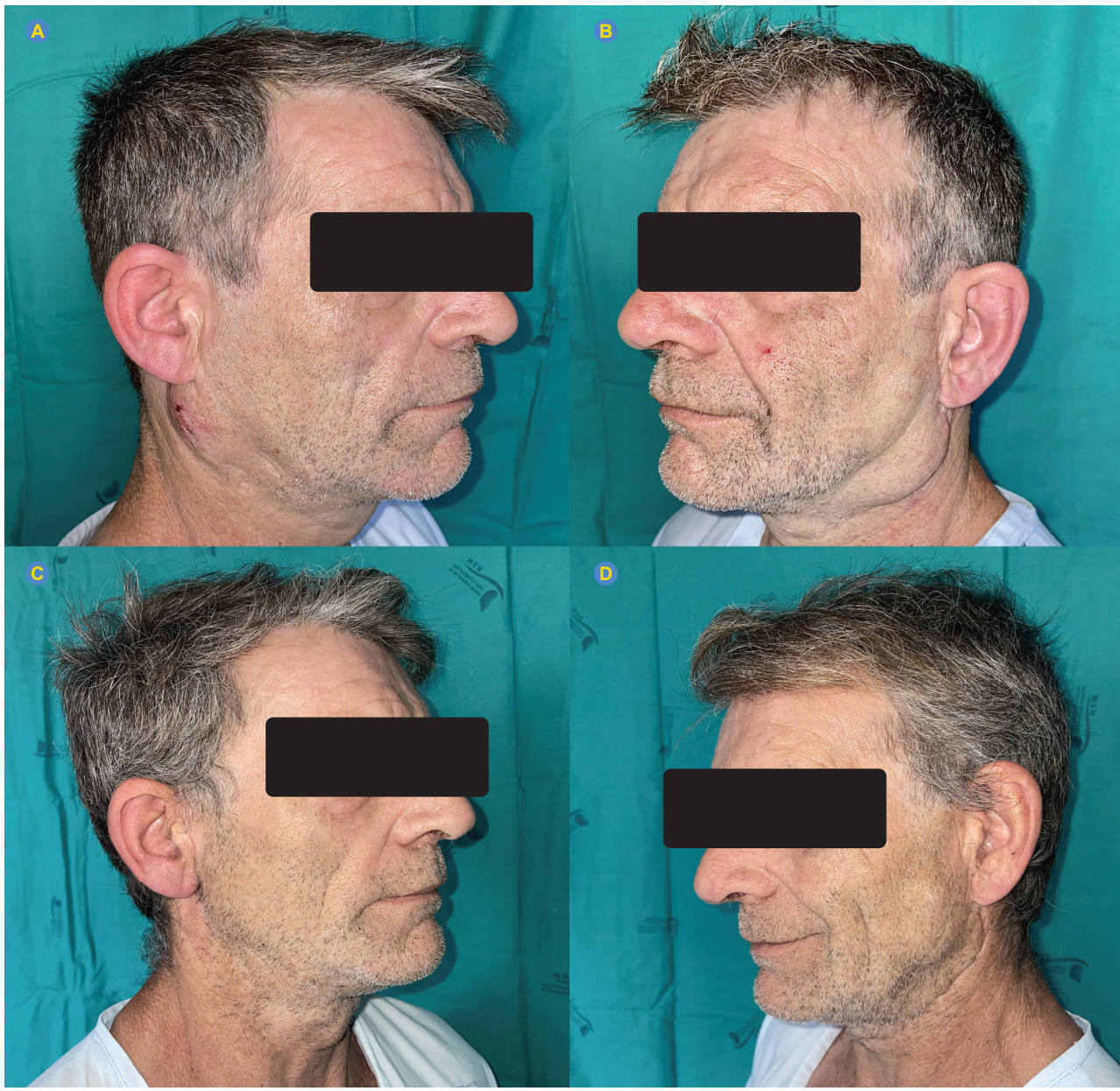

Figure 3 – Pre-operative photo of right parotid tumor (A). Pre-operative photo of left parotid tumor and extra-parotid tumor on left carotid triangle (B). Post-operative photo after excision of right parotid tumor (C). Post-operative photo after excision of left extra-parotid tumor (left parotid tumor under surveillance) (D).