

tissue atrophy, and peripheral neuralgias; improvement of local vascularization; and reduction of inflammatory status.

Fat grafting for the treatment of vulvar neuromas is a promising modality. The fat graft probably creates a protective envelope around nerves, thus reducing compression. The procedure is simple, with minimal risk of serious complications.

Conflict of interest

The authors have no conflicts of interest.

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Anesthetic management of ovarian teratoma excision associated with anti-*N*-methyl-*D*-aspartate receptor encephalitis

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Dalmau et al. [1] described 12 young women who presented with psychiatric symptoms, amnesia, seizures, dyskinesia, autonomic dysfunction, and loss of consciousness. These patients required advanced vital support measures for a prolonged period of time. The cases were associated with ovarian teratoma and antibodies against *N*-methyl-*D*-aspartate (NMDA) receptors NR1, NR2A, and NR2B subunits. Anti-NMDA receptor encephalitis pathophysiology is explained by cross reactivity of antibodies produced by the immune system against ectopic brain tissues, such as those found in teratomas. The main epitope targeted by the antibodies is the extracellular N-terminal domain of the NR1 subunit. The NMDA receptor requires binding of glutamate or, with less affinity, aspartate, to its NR2 subunit and the co-agonistic union of glycine to the NR1 subunit to open up the ion channel.

Despite the benefit associated with surgery and the known role of the NMDA receptor in general anesthesia mechanisms [2], there has been little discussion of the anesthetic management of these patients. Mediastinal masses must be ruled out before airway manipulation is attempted. Agents such as ketamine, nitrous oxide, xenon [3], methadone, and tramadol [4] are NMDA receptor antagonists. The

response to these agents is unpredictable in patients with anti-NMDA receptor encephalitis. Nitrous oxide, xenon, methadone, and tramadol share anti-NMDA properties. Other anti-NMDA agents are dextromethorphan, dextropropoxyphene, amantadine, phencyclidine, and ethanol, among lesser-known others. Isoflurane at supraclinical doses has been found to be involved in anti-NMDA receptor activity in animal studies [5], but not in humans at usual doses.

The present communication describes 2 patients who were admitted with a sudden psychiatric picture and rapid neurologic deterioration that required advanced vital support measures. Both cases were associated with an ovarian teratoma containing ectopic tissue responsible for antibody production against central nervous system NMDA receptors.

A 33-year-old female presented with sudden onset inappropriate behavior (rudeness, sexually explicit language) and rapidly progressed to akinetic mutism over the following 2 weeks. The patient had undergone excision of a left-sided ovarian teratoma 2 years previously. At admission she was speechless and had rigidity of the face and extremities, oral dyskinesia, and a negative Babinski sign. Over the period of a few days the patient developed urinary retention, ileus, hyperhidrosis, hyperthermia, tachycardic and bradycardic episodes, blood pressure instability, hypoventilation, and hypoxia that required mechanical ventilation. The patient's cranial computed tomography (CT) was normal. Magnetic resonance imaging (MRI) showed a weak hyperintense signal in the left hippocampus compared with the right side. The abdominal CT detected a right-sided abdominal mass compatible with an ovarian teratoma. Cerebrospinal fluid antibodies against glutamate NMDA receptors were positive by indirect immunofluorescence. A paraneoplastic encephalitis was diagnosed and the patient was scheduled for ovarian mass excision to be followed by corticosteroids, gammaglobulin, and plasmapheresis. Induction of anesthesia was achieved with propofol, and succinylcholine was used for muscular relaxation to provide optimal intubation conditions. Anesthesia was maintained with fentanyl, rocuronium, and sevoflurane. Extubation was attempted at the end of the procedure without complication. No complications, unexpected events, or temperature derangement occurred perioperatively. Ketamine, nitrous oxide, and tramadol were avoided. Two weeks after surgery, the patient's encephalitic picture began to improve and 1 month later her mental status had returned to normal.

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A 27-year-old female presented with hallucinations, excessive speech, disorientation, and hyperthermia without evidence of infection. Neuroleptic treatment did not improve the clinical picture. Cranial CT was negative. Hyperthermia was complicated by muscular rigidity and seizures that progressed to status epilepticus. The patient was intubated emergently and admitted to the Intensive Care Unit. Orofacial dyskinesia, catatonic-like behavior, frequent multifocal myoclonus, high blood pressure, tachycardia, diaphoresis, and hypoventilation/desaturation episodes complicated the clinical picture further. The response to 5 different antiepileptic agents was suboptimal. Cranial MRI showed bilateral focal lesions along the frontoparietal subcortical white matter, with no restriction to diffusion. Abdominal CT detected a left adnexal cyst. A paraneoplastic encephalitis was suspected and treated with corticosteroids, immunoglobulins, and plasmapheresis. Anti-NMDA receptor antibodies were positive in cerebrospinal fluid. The cyst was surgically excised. A total intravenous anesthetic including propofol, remifentanyl, and rocuronium was used. No complications, unexpected events, or temperature derangement occurred perioperatively and agents such as ketamine, nitrous oxide, and tramadol were avoided. Pathology revealed a mature teratoma. The patient's clinical picture improved over the following 2 weeks, but subtle mental changes such as poor communication and retrograde amnesia remained.

In a review of 100 cases, the median age of patients with anti-NMDA receptor encephalitis was 23 years [6]. These patients initially showed psychiatric symptoms or memory derangements; 76% had seizures, 88% had decreased consciousness, 86% had dyskinesia, 69% had autonomic instability, and 66% suffered hypoventilation. Of the cases, 60% had tumors—most frequently ovarian teratoma, but also mediastinal teratoma. Patients who received early immunotherapy

and surgical treatment had better outcome and fewer neurological relapses. Seventy-five patients recovered or had mild deficits, whereas 25 had severe deficits or died.

In conclusion, a standard anesthetic, either intravenous or inhaled, demonstrated adequate performance for patients with anti-NMDA receptor encephalitis. NMDA antagonists such as ketamine, nitrous oxide, xenon, tramadol, and dextropropoxyphene should be judiciously avoided perioperatively because of the uncertainty about the pharmacodynamic response of an abnormal NMDA receptor.

Conflict of interest

The authors have no conflict of interests to disclose.

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Primary urothelial cell carcinoma of the vagina

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In 2010 at the Division of Urology, Melegnano Hospital, Milan, Italy, a 51-year-old woman with a previous diagnosis (in 2001) of breast carcinoma and with no history of previous urogenital

carcinomas underwent removal of a mass from the lower-right vaginal wall, which was sampled in toto. The lack of infiltration of lamina propria and of a squamous cell component enabled excisional biopsy with preservation of the uterus and the ovaries.

Histologic examination of the whole neoplasm showed an epithelial proliferation with papillary architecture and a fibrovascular core. The proliferation had features of a conventional urothelial carcinoma (transitional cell carcinoma [TCC]), with low-grade cytologic atypia (i.e. the features of a low-grade papillary urothelial cell carcinoma) and without infiltration of the lamina propria. Squamous cell differentiation was not detected (Fig. 1).

Immunoreactivities for p63, cytokeratin 7, cytokeratin 20, and 34βE12 were documented. Immunostainings for p16 and human papillomavirus were negative. Extensive clinical, radiologic, and cystoscopic investigation revealed no papillary and/or flat lesions in either the upper or the lower urinary tract. Thus, the present case was reported as a primary urothelial cell carcinoma of the vagina. Nine months after excision, the woman showed no evidence of local recurrence.

Primary urothelial cell carcinoma of the vagina may originate from a transitional cell metaplasia of the squamous vaginal epithelium. All

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