

## Myelography and residual contrast in panoramic radiography: case report

### Presença de contraste residual de mielografia em radiografia panorâmica: relato de caso

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#### ABSTRACT

Myodil or pantopaque is an oil-based contrast solution often used up to 1980 for myelography, cisternography, and ventriculography. Oil-based contrasts have a very slow clearance time in the cerebrospinal fluids and may encapsulate for decades and remain in the central nervous system and the interior of the spine. The knowledge of the existence of this rare condition coming from other radiographic tests of the past, described in this clinical case, is essential when atypical radiographic images are found.

**Indexing terms:** Contrast media. Myelography. Radiography, panoramic.

#### RESUMO

O myodil ou o Pantopaque é uma solução de contraste a base de óleo usada frequentemente até 1980 para mielografia, cisternografia e ventriculografia. Os contrastes à base de óleo têm um tempo de liberação muito lento nos fluidos cefalorraquidianos e podem encapsular por décadas e permanecer no sistema nervoso central e no interior da coluna vertebral. O conhecimento da existência dessa condição rara proveniente de outros exames radiográficos do passado, descritos neste caso clínico, é essencial quando são encontradas imagens radiográficas atípicas, principalmente em radiografia panorâmicas.

**Termos de indexação:** Meios de contraste. Mielografia. Radiografia panorâmica

#### INTRODUCTION

Contrast agents are drugs commonly used in medical imaging tests, which allow a better visualization of the tissues and structures of the body, being indispensable for the diagnosis of some pathologies [1, 2].

Pantopaque or Myodil is an oil-based radiopaque contrast agent frequently used up to the 1980's in myelography tests, which consists of the application of the contrast substance in the spinal subarachnoid space, in order to evaluate any abnormalities inside the spine [3].

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According to Kanikadaley [1], oil-based contrasts are known for their low clearance rate in the cerebrospinal fluid, which can remain in the body for more than 3 decades without painful symptoms. For this reason, the contrast substances were gradually replaced with water-soluble media, which can be absorbed and excreted within a few minutes after the injection.

The present study aims to report a clinical case of radiographic findings compatible with residual contrast, in order to show that, despite the rarity, such cases can occur and the dentist must be able to differentiate it from any abnormalities.

## CASE REPORT

### Myelography and residual contrast

A 62-year-old male patient attended the dental clinic for prosthetic rehabilitation. The clinical examination revealed the absence of some dental elements, and other anatomical structures within normality. The anamnesis patient reported having lost these elements throughout life, due to carious lesion and / or periodontal problems. He did not report any systemic changes.

Panoramic radiographic test revealed radiopaque images circumscribed in the base region of the skull, and subarachnoid space on both sides, but more evident on the right side (figure 1).

After being asked if he had to use a contrast solution, the patient reported that when he was 30 years old he had a lumbar disc problem caused by his practice and had a "spine radiography" done. The patient also reported that he did not judge relevant at the time to tell his dentist about the radiography and its procedures, once he thought it was not of dental interest. However, radiopaque images are shown in head and neck tests which proves the importance of detailed anamneses.

The radiopaque images found on panoramic radiography are a characteristic of the contrast substance residue and, in the clinical case, remained undetected and asymptomatic for decades.

After being presented with the intentions of the study, the patient signed a free and informed consent form.

## DISCUSSION

Since it was introduced in 1919, myelography has been used universally as the test of choice to diagnose



**Figure 1.** Panoramic radiography - Circumscribed radiopaque images located in the subarachnoid space on both sides, compatible with residual contrast.

pathologies in the spinal cord. Contrast agents are used to facilitate examination analysis. As of 1922, oil-based substances were introduced, which provided an improvement in the image of the subarachnoid space [1,3].

According to Ramsey et al. [2], Iofendylate, Myodil or Pantopaque was introduced in 1944 and since then the most widely used. Pantopaque is a mixture of chemical elements that contains associated iodide, is a yellowish, almost colorless, oily liquid that bleaches when exposed to sunlight.

Myodil may persist in the central nervous system as encapsulated drops that become calcified or as a thin film that can cause a systemic toxic reaction in the body. In the literature it is possible to find reports of the appearance of residual contrast mainly in the subarachnoid space, in the extramedullary spaces [4-6]. In our case, we observed circumscribed radiopaque images, suggestive of encapsulated droplets, which justifies asymptotology. Some authors have reported that patients may suffer from post-myelography headaches for up to 6 months, as a consequence of the blood irritation that oil-based contrasts can cause [7,8].

The potential complications associated with pantopaque, with no possible prevention or any treatment modalities, led to the search for better contrast agents and the decline of the use of this substance [9]. According to Navani et al. [10], contrast agents should not have acute or chronic effects on the meninges, spinal cord or nerve roots, should remain sufficient for a complete radiological study, but should be completely excreted as soon as possible. Currently, Omnipaque and Iopamidol are some of the most commonly used water soluble contrasts.

## Myelography and residual contrast

With the increasing use of CT scans and magnetic resonance imaging, the use of myelography decreased and, consequently, the use of Iofendylate [11]. However, even though rare, Myodil residues can still be visualized and can even be interpreted as diseases. When atypical radiographic findings are found, associated with a careful anamnesis, the health professional should consider the possibility of residual contrasting substances from other radiographic tests. This study reports a clinical case of radiographic findings, compatible with asymptomatic Myodil residues 3

decades after its application. This emphasizes the need for awareness on these findings, which, even though rarely occurring, must be diagnosed with accuracy and expertise.

## CONCLUSION

Residues of oil-based contrasts have decreased over the years. However, they are commonly seen on panoramic radiographs, especially in elderly patients, as evidenced in the clinical case. Therefore, we aim to increase awareness that this condition is latent and can be observed with certain frequency in imaging, being central for accurate diagnosis.

## Collaborators

The author Bárbara Couto Ramos contributed to the writing of this paper, Flávio Ricardo Manzi contributed to the clinical case analysis and writing this paper too. Amaro Ilídio Vespasiano Silva carried out the paper revision and orientation of the work developed.

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