



Santa Casa de Vinhedo

Rotary Club Project

Acquisition of neurological microscope

Benefits of microscopy

In the second half of the 20th century, neurosurgery underwent a profound transformation with the development of microneurosurgery by Yasargil using a microscope.

Evolutionarily lower rates of complications were observed due to intraoperative hemorrhage control and wide resection of intracranial lesions.

The microscope allows manual focus adjustment and zoom magnification of approximately 10 x the actual size, this allows us to handle lesions up to 1 mm such as, cerebral aneurysms.

Surgical microscopy is a complementary and essential tool in surgery and its use indicated in most procedures performed by the specialty.

Below are some procedures that can use a microscope:

Column.

- ✓ Cervical, thoracic, lumbar disc herniation;
- ✓ Surgical treatment of syringomyelia;
- ✓ Intramedullary, extramedullary and intradural tumors, and extramedullary and extradural;

Peripheral nerve.

- ✓ Carpal tunnel syndrome;
- ✓ Neurolysis of peripheral nerves of lower and upper limbs;
- ✓ Transposition of nerves;
- ✓ Brachial plexus neurolysis;

Tumors.

- ✓ Skull base tumor (schwannoma, meningioma);
- ✓ Infratentorial tumor (brain metastasis);
- ✓ Supratentorial tumors (grade 1 - 4 brain gliomas, brain metastasis);
- ✓ Brain cysts;

Epilepsy - surgical treatment of epilepsy.

- ✓ Amygdalohypocampectomy;

Functional - treatment of pain, movement disorder.

- ✓ Cordotomy, rhizotomy;

✓ Vascular.

- ✓ Cerebral aneurysm;
- ✓ Cerebral venous artery malformation;
- ✓ Cavernoma of several regions;
- ✓ Cerebral venous artery fistula;

Trauma

- ✓ Traumatic complex vascular injuries;
- ✓ Nerve injuries;
- ✓ Treatment of CSF fistula.

Intracranial and extracranial injuries have different prevalence rates. At traumatic injuries are the most prevalent, but some vascular and neoplastic injuries require the use of a microscope due to the high risk of operative Peri hemorrhage and, consequently, life-threatening.

Currently at Santa Casa de Vinhedo, we perform small and medium-sized surgeries that do not require the use of a microscope, but during the last year, patients have already been diagnosed with injuries that the use of microscopy was essential for its treatment. In these cases we try vacancies via state regulation to transfer the patient when SUS, through the CROSS - Health Services Offering Regulation Center that in all cases in the year of 2019 we were not successful because the referral hospitals are full, without conditions to receive more patients. The alternative to minimize the risk to the patient's life has been a partnership with other hospitals where Santa Casa de Vinhedo transfers patients to perform the procedure and after surgery they returned to the hospital of origin, thus bringing a great deal of discomfort with commuting, involving great logistics and structure for these removals, medical staff, ICU vacancy, in addition to having to pass on the value of the procedure to these partner hospitals.

In the case of health insurance patients, as Santa Casa de Vinhedo cannot attend these cases, it immediately transfers these patients to referral hospitals.

Both the patient in the single health system and the health insurance can benefit from the use of microscope that would make high complexity surgery possible at Santa Casa of Vinhedo.

Other specialties, such as otolaryngology and orthopedics, can benefit from use of the microscope, with microsurgery for otological injuries and surgeries of hand respectively.

The transfer of the single health system has a specific code and values for procedures performed through microscopy. Its standardization makes it possible to increase earnings and increase service complexity.

For example, discectomy (disc herniation removal) performed with a microscope (b) allows an increase of around 300% in the value of hospital service when compared to discectomy performed without a microscope (a).

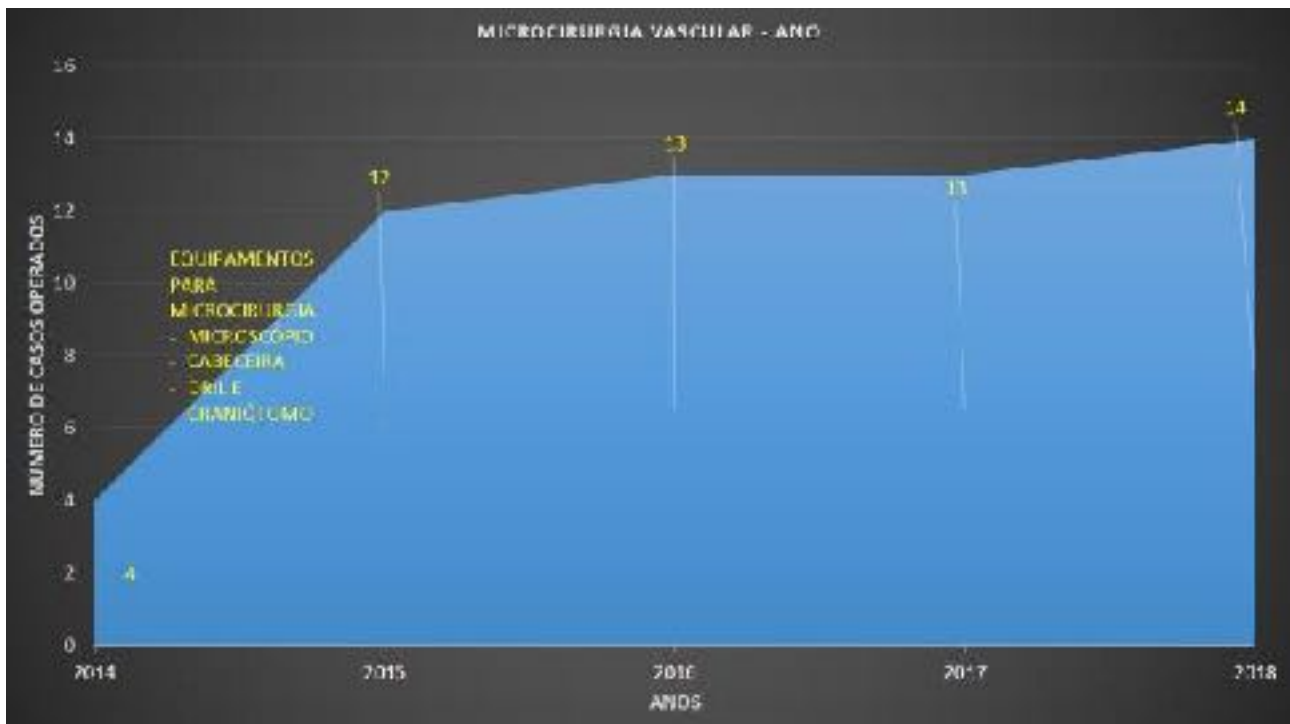
A) DISCECTOMY LEVEL 1 WITHOUT THE USE OF THE MICROSCOPE
(04.08.03.039-9) – Hospital service level - R\$ 431,32

B) DISCECTOMY LEVEL 1 WITH THE USE OF THE MICROSCOPE
(04.08.03.038-0) - Hospital service level - R\$ 1.250,27

Real gain of R \$ 818.95 (eight hundred eighteen reais and ninety-five cents) in just one procedure

I will show you another example with collected data from another service.

Data from hospital A



Evolutively, in hospital A he diagnosed 56 patients with vascular injuries in the 5 years above, all of which are treated with microsurgery (using a microscope).

The code used to transfer the SUS was (04.03.04.006-0) MICRO SURGERY FOR EVIL DEEP ARTERIO VENOUS FORMATION because it is compatible with the patients' diagnosis.

According to the application made available on the servers, the hospital service value (SH) is 1698.05.

The history of hospital A:

- 2014 - R\$ 6.792,20
- 2015 - R\$ 20.376,60
- 2016 - R\$ 22.074,65
- 2017 - R\$ 22.074,65
- 2018 - R\$ 23.772,70

This was an example of a low prevalence disease.

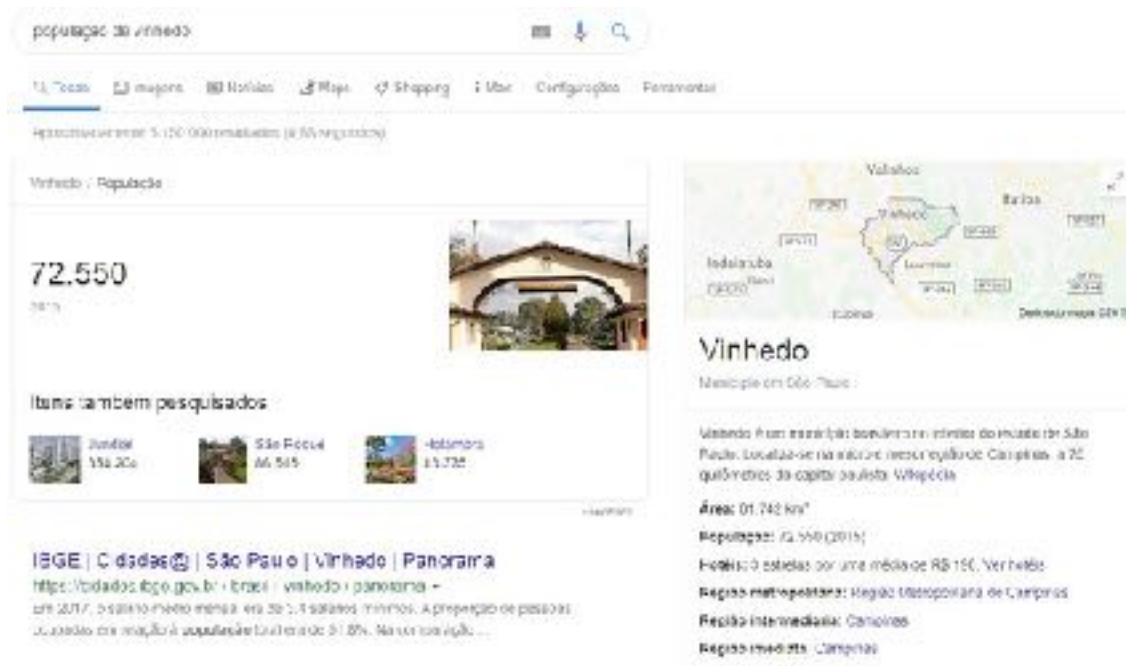
Considering a highly prevalent disease such as lumbar disc herniation. "Disc herniation occurs mainly between the fourth and fifth decades of life (mean age 37 years), despite being described in all age groups (5-8). It is estimated that 2 to 3% of the population may be affected, with a prevalence of 4.8% in men and 2.5% in women, over 35 years. Because it is so common, comes to be considered a global health problem, due to the disability that generates (9). "Hérnia Discal Lomba: Rev Bras Ortop. 2010;45(1): 17-22

Considering the 2015 census, the population of Vinhedo (figure A) has 72,550 people inhabiting the region and the proposed article refers to a prevalence of 2 to 3% of the population. Numbers figures indicate that 2 176 would suffer from this disease. If 5% of

patients have an indication of surgery we will perform 108 procedures that will lead to a gain of R \$ 134,029.16 when considering the SUS table and the code (08.08.03.038 - 0) - 1 level lumbar discectomy.

Obviously, Santa Casa de Vinhedo has other specialties and basic needs for functioning, however in terms of public health and financial growth it has its high added value.

Picture A



Below we will show the surgeries that today are not performed at Santa Casa de Vinhedo for missing the microscope, considering only codes and values from the SUS table and the remuneration of the hospital service (SH).

1. MICROSURGERY OF SYRINGOMYELIA
2. BRACHIAL PLEXUS MICROSURGERY WITH EXPLORATION AND NEUROLYSIS (SH R\$)
3. BRACHIAL PLEXUS MICROSURGERY WITH MICROENGESTURE
4. MICRO SURGERY OF COMPRESSIVE NEUROPATHY WITH OR WITHOUT THE USE OF MICROSCOPE
5. INTRADURAL AND EXTRAMEDULAR TUMOR MICROSURGERY
6. MEDICAL TUMOR MICROSURGERY WITH COMPLEMENTARY TECHNIQUE
7. SPIRITUAL TUMOR MICROSURGERY
8. MICRO SURGERY FOR SKULL BASE TUMOR
9. MICROSURGERY FOR INTRACRANIAL TUMOR
10. MICROSURGERY FOR INTRACRANIAL TUMOR WITH COMPLEMENTARY TECHNIQUE
11. MICRO SURGERY FOR EVIL CEREBRAL ARTERIAL VENOUS FORMATION
12. MICRO SURGERY FOR EVIL DEEP VENOUS ARTERY FORMATION
13. INTRACRANIAL VASCULAR MICROSURGERY (COMPLEMENTARY TECHNIQUE) -

14. MICRO SURGERY FOR ANEURISM OF ANTERIOR CIRCULATION LESS THAN 1.5 CM
15. MICRO SURGERY FOR ANEURISM OF POSTERIOR CIRCULATION LESS THAN 1.5 CM
16. MICRO SURGERY FOR MULTILobar RESECTION - HEMISPHERECTOMY - CALOSOTOMY
17. MICROSURGERY FOR TEMPORAL LOBECTOMY, SELECTIVE AIGDOLAHIPOCAMPECTOMY
18. DISCECTOMY 1 LEVEL WITH MICROSCOPE
19. TRANSESPHENOIDAL HYPHOPHYSECTOMY BY COMPLEMENTARY TECHNIQUE
20. BONE TUMOR CRANIECTOMY

Altogether we could not perform 20 (twenty) surgical procedures due to the lack of a microscope, where we already have a structure like, specialized medical team and ICU to attend to these cases, which further justifies the need for this equipment.

Bellow some pictures of some projects that Rotary Club of Vinhedo did in Santa Casa of Vinhedo.



ICU - Intensive Care Unit



The play room for children