

## Major ambulatory surgery and breast pathology

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### Abstract

**Aim:** To present our accumulated experience of 614 cases of breast pathology undergoing major ambulatory surgery (MAS). **Materials and methods:** Over a period of 8 years, 1407 patients underwent surgery for breast pathologies, of whom 614 participated in the ambulatory circuit of a type-II General Hospital MAS Unit. These consisted of 362 breast nodules, 226 non-palpable lesions, and 26 other pathologies. Also presented are 20 cases of selective sentinel lymph node biopsy done on an ambulatory basis. The anaesthesia type used was local anaesthesia plus sedation. The substitution rate (SR) and the rate of unexpected admissions are analysed. **Results:** During the study period the breast nodule substitution rate went from 69 to 100%, that of non-palpable lesions from 5 to 100% and that of other pathologies from 29 to 90%. For selective sentinel lymph node biopsies it was 100%. The overall rate of unexpected admission was 1%, with no re-admissions recorded. **Conclusions:** MAS is an ideal method for dealing with the most benign breast pathologies. The opportunities offered by selective sentinel lymph node biopsy in malignant pathology are discussed.

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**Keywords:** Ambulatory surgery; Breast nodule; Sentinel lymph node

### 1. Introduction

Various alternative systems to conventional hospitalisation have been introduced in Spain in recent years. Of note in the field of surgery is the creation and development of major ambulatory surgery (MAS) units, which, to greater or lesser extents, are linked to traditional hospitals. Both in the countries around us and in the different regions of Spain this development has been irregular due to differences in the organisation of health systems, types of financing and the idiosyncrasies of medical units. Whereas payment for medical treatment favours the development of MAS, as has occurred in the USA, the driving force behind MAS in Europe has been the increase in waiting lists for the most common surgical procedures and the need to improve the efficiency of the health systems [1–3].

Breast conditions, particularly those of a malignant nature, have not been widely included in MAS programmes, despite being very common and meeting the usual criteria for selection [4–7]. However, there has recently been a series of events that augur a significant increase in the breast pathology substitution rate (SR). These include the implementation of screening programmes, the acceptance of conservative surgery and selective sentinel lymph node biopsy in the treatment of breast cancer, the increasing awareness of the population of the benefits of the ambulatory regimen, the creation of specific breast pathology units and the strong support given to MAS by the government [8,9].

The MAS Unit at our hospital opened at the same time as the main hospital, in 1994. Many breast conditions were included in the MAS programme of this unit in view of their high incidence, their social repercussions and the meeting of the established criteria for selection [10]. This paper presents our experience accumulated over an 8-year period.

### 2. Materials and methods

The MAS Unit at the “Morales Meseguer” University Hospital is type-II or second level, i.e. it has its own stage 2

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recovery ward (day ward) with 16 beds, which is independent of the conventional hospital wards, but shares the rest of the facilities of the general surgery block, such as operating theatre and, when necessary, the stages recovery unit. It is open from 7 a.m. to 10 p.m., although since June 1999 and during special periods—in which operations are performed in an afternoon/evening session—an infirmary night shift has been included, which has led to the day ward remaining open longer.

Between January 1995 and December 2002, we performed 614 MAS operations out of a total of 1407 patients programmed for breast surgery (43.6%). Each case was assessed by surgeons and anaesthetists prior to the pre-operative studies. The criteria for exclusion from the programme were divided into the following categories: (1) *patient-related*: age >75 years, non-acceptance of or inability to understand the procedure, decompensated ASA III, ASA IV and anticoagulation treatment; (2) *environment-related*: difficulty in reaching the hospital (more than 1 h), inadequate place of residence, or no relative to take charge of the patient; (3) *surgery/anaesthesia technique-related*: presentation of bleeding complications, need for drainage, intra-operative cardiorespiratory problems and other unexpected events that also led patients to be excluded from the programme.

The patients were admitted to the Day Hospital on the morning or afternoon of the operation as applicable to undergo adequate preparation, which in some cases included antibiotic and antithrombotic prophylaxis according to our protocols. Local anaesthesia occasionally with added sedation, was used.

To locate non-palpable lesions we used a needle-harpoon (Model Ariadne's Thread by Allegiance®) guided by ultrasound or mammography. The procedure was carried out in the initial years (until 1999) by a radiologist from an officially approved centre in the evening prior to biopsy/removal, which meant that the patient had to be admitted after placement of the harpoon. From 1999 onwards it was done at our hospital by a radiologist from the breast pathology unit, who placed the harpoon on the same morning as the operation, thus making admission the previous day unnecessary and enabling the procedure to be done on an ambulatory basis.

Thirty-two selective sentinel lymph node biopsies were done, the first 20 as a single operation, with local anaesthesia and sedation to validate the technique: the following 12 were done together with excision of the tumour.

After the operation most patients were taken directly to the day ward (fast track). Occasional patients were sent first to the stage 1 recovery unit at the anaesthetists' request. They were discharged home between 6 p.m. and 10 p.m., although in the period when the operating theatre and Day Hospital times were extended, this could be delayed until 7 a.m. the following day. The drugs used as postoperative analgesics were methamizol, ketorolac or tramadol administered orally. Occasionally metoclopramide or ondansetron

intravenously was used to treat nausea and prevent vomiting. All the patients were given a discharge report, a specific advice leaflet and a telephone contact number. Twenty-four hours after hospital discharge, a nurse from the Day Hospital telephoned the patients to assess their status and identify possible complications and, if necessary, gave them an appointment for the Outpatients Department 48–72 h after the operation.

### 3. Results

Of a total of 1407 patients programmed for breast surgery, 614 cases had the operation on an ambulatory basis (595 females and 19 males), representing an overall SR of 43.6%. The mean age of the patients was 45.7 years (range: 12–72). The conditions were 362 breast nodules, 226 non-palpable lesions, 18 gynaecomastias, 7 peri-areolar fistulas and 1 biopsy of the areola/nipple complex (Table 1). The annual SR evolution of each pathology is shown in Fig. 1. The overall SR for the non-palpable lesions was 62%, although these were not included in the MAS programme until 1999, the year in which we began harpoon placement in our hospital; in the last year they were all done on an ambulatory basis (Table 1 and Fig. 1). The overall nodule SR was 87%, with a significant increase in the annual SR from 65% in 1995 to attain 100% in 2002. The rest of the processes presented an overall SR of 44.8%, among which are peri-areolar fistulas, gynaecomastias and other surgical biopsies.

In the same period of time 569 breast cancer patients underwent surgery (284 with a modified radical mastectomy and 285 with conservative surgery techniques). No diagnosed carcinoma was included in the ambulatory programme, although since April 2002 we have been including them in a short-stay surgery programme, based on self-care of the drainage system, with the patients discharged between the first and third postoperative days fitted with a drain. In 2002, we began the selective sentinel lymph node biopsy technique in cases with tumours of less than 3 cm, taking a total of 32 biopsies. The first 20 were done on an ambulatory basis, with local anaesthesia and sedation, since they were programmed as an initial surgical intervention, and these were systematically followed by axillary lymphadenectomy a week later to correlate the anatomico-pathological findings and validate the technique. In this phase only two cases, in which the sentinel lymph node revealed metastatic involvement, showed axillary involvement (100% correlation). After validating the technique we performed another 12 sentinel lymph node biopsies in the same operation as the breast surgery and found one more case of metastatic involvement, which required a subsequent axillary lymphadenectomy; these 12 cases were included in the short-stay circuit and were discharged in 24–48 h.

Only six patients (1%) required unexpected hospital admission and were considered MAS failures. The causes were haemorrhage/haematoma in five cases and orthostatic

Table 1  
Operations performed

Year	NPL			Nodule			Other <sup>a</sup>		
	MAS	S/A	SR (%)	MAS	S/A	SR (%)	MAS	S/A	SR (%)
1995	0	12		37	17	69	0	0	
1996	0	37		40	4	91	0	3	
1997	0	38		35	4	90	0	4	
1998	0	26		47	13	78	0	6	
1999	1	19	5	55	8	87	2	5	29
2000	115	2	98	54	7	89	2	5	29
2001	50	2	96	46	3	94	4	7	36
2002	60	0	100	48	0	100	18	2	90
Total	226	136	67	362	56	87	26	32	44.8

NPL: non-palpable lesion; MAS: major ambulatory surgery; S/A: surgery with admission; SR: substitution rate (expressed as a percentage).

<sup>a</sup> Sentinel lymph node biopsies are not included.

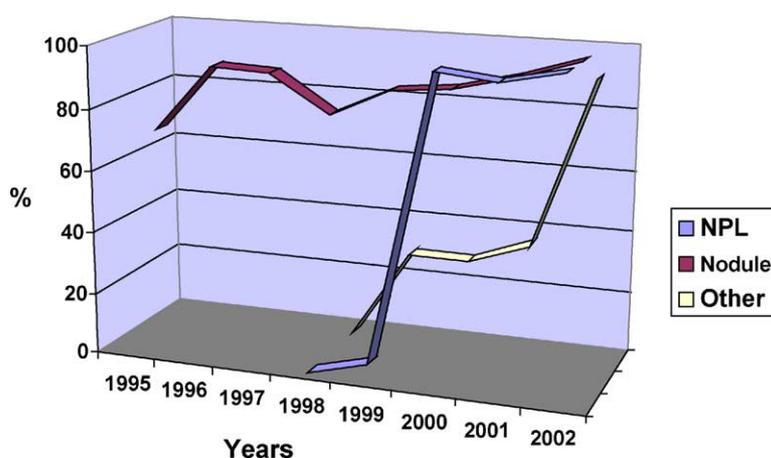


Fig. 1. Evolution of the annual substitution rate for each pathology. NPL: non-palpable lesion.

hypotension and maintained vagal crisis in one patient. No re-admissions were recorded, and postoperative complications, which were mild, were treated on an ambulatory basis (seromas, haematomas, surgical wound infections).

#### 4. Discussion

MAS is a very efficient procedure for resolving the most common pathologies in general surgery as well as maintaining and even increasing perceived quality [2,10,11]. The ideal type of unit for developing MAS depends on the structure of the hospital, the expected volume of patients and the re-engineering capacity of the services. Four types of units have been described, according to how independent they are of the traditional systems of surgical attention [12,13]. Our unit was created at the same time as the rest of the hospital structure in 1994 and is type-II, a choice made for the flexibility of the surgery programmes.

The surgery processes selected for the ambulatory regimen were included following the previously established criteria [4–6]. From the beginning we contemplated the most common breast pathologies, although initially only breast

nodule excision was done in MAS, with a 69% SR. From the second year onwards, almost all nodules were treated on an ambulatory basis, which reflects the greater confidence in the method by both doctors and patients.

The non-palpable lesions were removed surgically once they had been located by ultrasound- or mammography-guided needle-harpoon. These patients came from a radiological screening programme for early detection of cancer. It was included as an MAS procedure [8,14] although it could not be included in our MAS programme until late 1999, when we acquired the necessary technology and trained our own expert radiologist in the technique. This made it unnecessary for prior admission after location of the lesion in another (officially approved) centres in the case of patients living at a distance. In the last year of the study, all radiosurgical biopsies were done on an ambulatory basis. In breast unit this technique is indicated in grade 3 non-palpable mammography lesions from radiological screening and grade 4 and 5 lesions without cytological confirmation according to the BI-RADS classification of the American College of Radiology [15]. When ultrasound is able to locate the lesion (nodule or defined area) it is used to place the harpoon; in cases which cannot be visualized by ultrasound, location is

done by mammography (fundamentally, grouped microcalcifications with no defined nodule). Some authors advocate stereotactic biopsy using mammography for non-palpable lesions [16], but this technique is unavailable to us and we have no experience in it. However, following the criterion of other centres we agree that harpoon-guided biopsy is the method of choice for non-palpable lesions that have no clear diagnosis by previous FNA or thick-needle biopsy, because it has a low mortality rate and high diagnostic yield, it can be done on an ambulatory basis and above all, it offers the possibility of excising the lesion and constituting a definitive treatment [17].

In recent years, with our increased experience and confidence in MAS, we have performed other ambulatory procedures for breast pathologies, such as alterations in the areola/nipple complex (seven peri-areolar fistulas and one surgical biopsy after suspicion of Paget's disease of the nipple) and 18 gynaecomastias. These procedures were done under local anaesthesia and sedation, and all the patients were discharged on the day of the operation. The possible need for drainage did not exclude them from the programme, as the patients had a drainage system fitted that was low-vacuum and easy to manage, although they did require periodic outpatient follow-ups until the drains were removed.

Only six patients needed unexpected hospital admission (1%), basically due to bleeding problems of the wound (evident or bleeding haematoma) that did not require re-operation, and they were discharged 24–48 h later. One patient required admission for a vagal reaction with a sensation of maintained instability, which disappeared in few hours, and was discharged the following day. The low admission rate contrasts with that observed in other centres [9] and is probably related to the widespread use of local anaesthesia together with careful haemostasis and the added possibility of night-time hours recovery in the day ward for cases undergoing surgery in the afternoon/evening.

Surgery for cancer has been performed with success in some centres [18–21] but for the moment we have excluded it from our MAS programme, basically due to the frequent use of total mastectomy, the patients' lack of confidence and the inherent inconvenience of drainage. We do have it included in the early discharge programme, a regimen that we consider ideal for this type of surgery after instructing patients in the management of the drains and following them up regularly (every 3 days) on an outpatient basis until removal.

The concept of sentinel lymph node biopsy applied to breast cancer was introduced in 1994 on the basis that a biopsy of a particular axillary lymph node in patients with early breast cancer, especially those with a risk of lymph node metastasis (T 1b-c), was a safe alternative to axillary lymphadenectomy in women with negative lymph nodes [22]. This technique has been incorporated into our MAS programme and opens up enormous possibilities for the ambulatory treatment of breast cancer, as it avoids a great deal

of axillary lymphadenectomy, which is the main cause of these patients being admitted [9]. To validate the technique, we first of all programmed it as a single operation done on an ambulatory basis, performing complete oncological surgery (conservative surgery and axillary lymphadenectomy) with hospital admission a week later. Subsequently we performed a sentinel lymph node biopsy together with breast resection, which forms part of the early discharge programme, and performed axillary rescue surgery in the positive cases a week later. In 2003, these patients have come to be included in the MAS programme.

In any case, oncological breast treatment in an ambulatory regimen requires careful planning and should include detailed pre-operative information for patients and relatives, ranging from the aims and benefits of MAS to the safety of the procedure, foreseeable incidents and management in the home of wounds and drains. A telephone number should always be given for enquiries.

## 5. Conclusion

MAS is an ideal system for treating the majority of benign breast surgery pathologies, as it combines rationalisation of costs with quality care. As for oncological surgery, we currently prefer a short-stay whilst encouraging an early discharge with drainage. However, the implementation of sentinel lymph node biopsy opens up the possibility of referring surgical treatment of malignant breast processes to the ambulatory regimen.

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