

# Day case hernia repair: a 3-year audit of patient recruitment

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## Summary

**Objective:** To audit the recruitment process of patients undergoing day case hernia repair at our Day Surgery Centre and to identify potential areas for further development and expansion of the current clinical service.

**Design:** A retrospective study.

**Subjects:** A total of 1,268 patients underwent hernia repair at our unit from December 1995 to December 1998. Four hundred and eighty-nine patients were initially selected for day case hernia repair but 210 patients were subsequently excluded after pre-anaesthetic assessment.

**Main outcome measure:** Reasons for exclusion from day surgery were classified into patient's preference, social, surgical and medical factors.

**Results:** Growth of day case hernia repair has remained static in the past 3 years. Social grounds (61%) was the most common reason cited for unsuitability for day case hernia repair after pre-anaesthetic assessment.

**Conclusion:** To achieve a full utilization of day case hernia repair service, we recommend modification of day case selection criteria, improvement of patients' acceptance of day surgery by education, promotion of clinicians' awareness of day surgery and a close monitoring of inpatient booking lists. With the escalating health costs in Hong Kong, the development of day case hernia repair represents the future.

**Keywords:** Day surgery, hernia repair, surgery, audit

## 摘要

**目的:** 核查在門診手術中心進行疝修補術病人的就診過程；探索擴大和發展現存臨床服務的空間。

**設計:** 回顧性研究。

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**對象:** 從 1995 年 12 月至 1998 年 12 月共有 1,268 名病人在本中心進行了疝修補術；初期診所共選擇了 489 名病人進行門診疝修補術，但有 210 名病人經麻醉前檢查不適合而被排除。

**測量內容:** 病人被排除做門診手術的原因包括：病人的選擇，社會因素、外科及內科的原因。

**結果:** 門診疝修補術的病例在過去 3 年中並沒有增長。經麻醉前評估後，病人不宜做門診疝修補術的最常見原因為社會因素 (61%)。

**結論:** 為了充分利用門診疝修補術的服務，我們建議修改門診手術病例的選擇標準，教育病人提高其對門診手術的接受程度，增強醫務人員對門診手術的了解，加強對預約入院手術病人的審查。由於香港醫療費用的飛漲，拓展門診疝修補術符合未來發展的趨勢。

**主要詞彙:** 門診手術，疝修補術，外科，核審

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## Introduction

Hernia repair is one of the commonest operative procedures performed in the world.<sup>1,2</sup> Strangulation of hernia often requires emergency operation, which carries significant morbidity and mortality. A long waiting time for hernia operation is therefore potentially hazardous to the patient. Day case hernia repair can help to shorten the operation waiting list and waiting time.<sup>3,4</sup> In addition, day surgery is a cost effective method to the hospital as substantial financial savings, in terms of hospital bed stay expenditure, could be achieved.<sup>5-7</sup>

Appropriate selection of patients and pre-operative assessment are the first steps toward the success of day case hernia repair.<sup>8-10</sup> The Day Surgery Centre was established in Tung Wah Hospital in 1995. The present study is conducted to audit the recruitment process of patients for day case hernia repair and to identify potential areas for further improvement and expansion of the current clinical service.

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**Methods**

The study population comprised all patients who were included for day case hernia repair after pre-anaesthetic assessment from December 1995 to December 1998. Most patients presented with hernia were initially screened by an attending clinician at the general surgical outpatient clinics at Sai Ying Pun Clinic, Tang Chi Ngong Clinic or Tung Wah Hospital. Patients who were considered fit for day surgery were referred to our Day Surgery Centre for more detailed assessment (**Figure 1**). A number of patients (n=16) were directly referred to the Day Surgery Centre from primary health care physicians under a shared care programme. Criteria adopted for selection of patients for day case hernia repair are listed in **Table 1**.

**Pre-anaesthetic assessment**

A pre-anaesthetic assessment clinic was arranged by phone at our Day Surgery Centre. During the pre-anaesthetic assessment, the patient was invited to complete a questionnaire to evaluate his or her social circumstances and suitability for day surgery. Medical fitness for general anaesthesia was assessed by a senior anaesthetist. Urinalysis, measurements of blood pressure, body weight and height were routinely performed on every patient. Other investigations, including full blood count, liver and renal function tests, chest roentgenogram and electrocardiography, were decided by the anaesthetist where relevant. Clinical assessment of the hernia, with

**Table 1: Selection criteria for day surgery**

1. ASA I or II
2. Age less than 70 years
3. Non-obese
4. No adverse anaesthetic history
5. Operation time < 90 minutes
6. Operation unlikely to cause loss of independence or toilet function
7. Operation unlikely to cause severe morbidity, haemorrhage or pain
8. No special care required post-operatively
9. Informed and consent to day surgery
10. Live within 1 hour's travel to hospital
11. Home access to telephone, lift, indoor toilet and bathroom
12. Competent adult to accompany home and look after the patient for 24 hours

*ASA = American Society of Anaesthesiologists risk classification*

respect to its safety for day case operative repair, was then conducted by a specialist surgeon. Suitability for day case hernia repair was determined and a date for admission was given to the patient. Instructions and information on peri-operative care and management was given to the patient. The reasons for exclusion from day surgery were categorized into patient's preference, medical, surgical and social reasons.

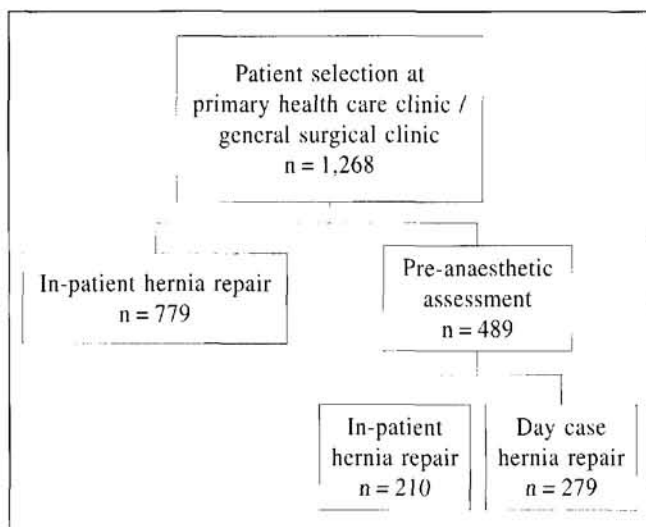
**Results**

From December 1995 to December 1998, a total of 1,268 patients underwent hernia repair at our unit. Of these, 989 patients underwent hernia repair as in-patients and 279 patients underwent day case hernia repair. The annual number of inpatient and day case hernia repairs were shown in **Figure 2**.

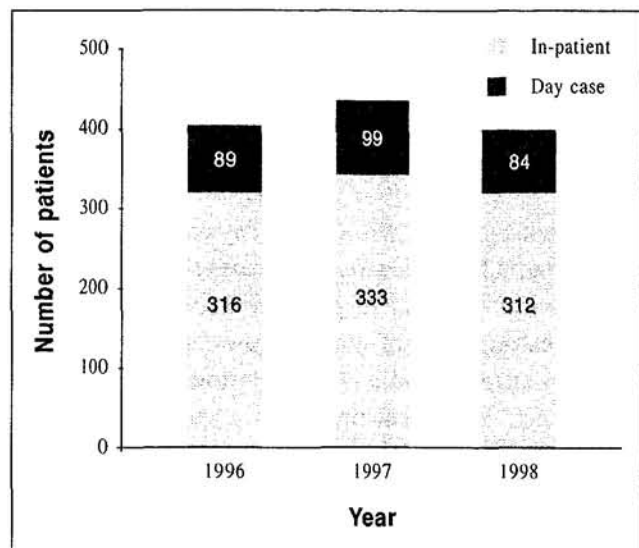
Four hundred and eighty-nine patients were initially selected for day case hernia repair at the general surgical outpatient clinic but 210 patients were subsequently excluded from day surgery after pre-anaesthetic assessment.

Of the patients excluded from the day case surgery, there were 21 females and 189 males, with a mean age of 53 years. The reasons for exclusion from day surgery after pre-anaesthetic assessment are listed in **Table 2**. Among all the reasons for not undertaking day surgery,

**Figure 1: Algorithm for the recruitment of patients for day case hernia repair**



**Figure 2: Annual number of in-patient and day case hernia repair**



**Table 2: Reasons for exclusion from day case hernia repair (n=210)**

Reasons for exclusion from day surgery	Number of patients
<b>Social problems</b>	<b>128</b>
No lift to reach home	77
No adult to accompany home	19
Take more than 1 hour to reach home from hospital	16
No adult at home for the 24 hours after operation	15
No indoor toilet or bathroom or telephone	1
<b>Medical reasons</b>	<b>40</b>
Abnormal findings on routine evaluation	13
Cardiac disorders	10
Pulmonary disorders	8
Multiple medical problems	5
Miscellaneous reasons	4
<b>Surgical reasons</b>	<b>23</b>
Large inguino-scrotal hernia	13
Recurrent hernia	6
Others	4
<b>Patient's preference</b>	<b>19</b>

social grounds was the most common cause. Of these patients (n=128), 11 had additional medical problems that required further medical evaluation. Most patients (n=77) lived on a high floor, i.e. 3rd to 8th floors, without a lift and they would have encountered great difficulty climbing up a few floors after operation.

Abnormal findings during routine assessment (n=13), e.g. high blood pressure, were the main reasons for the unsuitability of general anaesthesia as day case. It was followed by disorders of the cardio-respiratory system. Patients with large inguino-scrotal (n=13) or recurrent hernia (n=6) were excluded by the surgeons from day case repair as these operative repairs were often difficult and prolonged.

Of the 19 patients who preferred to have hernia repair as inpatient, heavy domestic responsibilities were common complaints. These were usually related to having to care for young children and unsatisfactory home conditions.

### Discussion

There has been no growth in the day case hernia repair over the past 3 years (Figure 2). The proportion of patients undergoing day case hernia repair remains at about 22%. In 1985, the Royal College of Surgeons of England recommended that about 30% of elective herniorrhaphies could be performed on a day basis.<sup>11</sup> This indicated that there is still room for expansion of the current clinical service.

Initial screening of patients for day surgery is performed by attending primary care physicians or surgeons at their clinics. Selection of patients for day case hernia repair is not only a matter of choosing the right patients but also involving appropriate exclusion of patients. It is likely that a certain proportion of suitable candidates had been inappropriately excluded from day case hernia repair, particularly by the new staff.<sup>12</sup> Reluctance of some doctors to accept day surgery has been known to be an obstacle in promoting day surgery.<sup>11</sup> Intrinsic conservatism and reservations over post-operative complications are the main concerns. It is therefore important to ensure all primary care physicians and staff attending the general surgical clinics are familiar with day case surgery. Alternatively, the inpatient waiting list should be closely monitored so that potential candidates for day case repair are brought to the attention of the Day Surgery Centre.

Day surgery requires highly trained staff, including specialist surgeons, experienced anaesthetists and nurse specialists.<sup>13</sup> Shortage of staff, particularly anaesthetists, and limited operating sessions have been partly

### Key messages

1. Day case hernia repair is a safe and convenient procedure to the patient and a cost-effective method for the hospital.
2. Careful selection and assessment of patients with hernia are the pre-requisites for the successful outcome of day surgery.
3. Continued audit is essential to improve the standard and quality of care.
4. It is anticipated that the volume of day case hernia repair will grow rapidly in the next few years.

accountable for the lack of growth of day case hernia repair in the past 3 years. Increase of manpower and operating sessions are conducive to further development.

With regard to selection criteria of day case patients, we have restricted day case hernia repair chiefly to patients of less than 70 years old with non-recurrent unilateral inguinal hernia. Recent audits of the early outcomes of our day case hernia repairs showed an excellent result.<sup>14</sup> Age limitation could perhaps become more flexible. Chronological age should no longer be the sole criterion for rejection of day case hernia repair.<sup>15</sup> Among those patients operated as inpatients, 46% (n=456) were of at least 70 years old and these were potential candidates for day case surgery. Hernia repair under local anaesthesia may be considered in patients unfit for general anaesthesia.

Of the patients who were excluded from day surgery after pre-anaesthetic assessment, social circumstances was the most frequent reason for patients requiring inpatient care. In some overseas centres, establishment of hospital hotels proved to be the solution for patients residing a great distance from the hospital. With the provision of a hotel service, 113 patients, who were excluded because of social or domestic problem, could have undertaken day case repair and recuperated in a hospital hotel.

With the current health care system in Hong Kong, where the cost of health care is almost shouldered solely by the government, most patients are presently not motivated to shorten the length of hospital stay. To enhance patient acceptance of day case hernia repair,

health talks should be organized and pamphlets, giving details of day case hernia repair, should be made widely available at outpatient clinics. The benefits of day surgery to the patient include convenience, a short waiting time for surgery (i.e. within 4 weeks), avoidance of the stress of hospitalization and post-operative complications, e.g. cross-infection.<sup>16-19</sup>

To achieve a full utilization of day case hernia repair, we recommend modification of day case selection criteria, education of patients to promote acceptance of day surgery, enhancement of clinicians' awareness of day case selection criteria, and a close monitoring of inpatient booking list. With escalating health costs in Hong Kong, further expansion of day case hernia repair represents the way of the future. ■

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