Case report

The surgical management of male breast cancer: Time for an easy access national reporting database?

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Highlights

- Male breast cancer is extremely rare with an incidence of less than 1% of all breast cancers.
- We report a series of seven cases of male breast cancer encountered over three years, evaluating patient demographics, treatment and outcomes.
- Review of these patients highlighted a lack of consensus on the optimal surgical strategy for their management.
- The paper discusses the plausible options for surgical reconstruction of male breast cancer defects.
- The authors advocate an easy access national reporting database to improve large scale data collection and surgical intervention.

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Abstract

Introduction: Male breast cancer is extremely rare with an incidence of less than 1% of all breast cancers. Literature reports a peak of incidence at roughly 71 years of age. Management currently follows the same clinical pathways as female breast cancer as a general rule.

Methods: A retrospective search for all patients who were referred and diagnosed with male breast cancer at our centre was undertaken. Patients notes were then explored for demographics, histological staging, multidisciplinary team meeting outcome and treatment. A literature search including the search terms ‘Male Breast Cancer AND Surgery’ or ‘Male Breast Cancer AND Experience’ were used. Non English language articles, or those without abstracts were excluded.

Results: Seven patients were reviewed over 3 years (2006–2009). Mean age was 69 years and mean lesion size was 15 mm. Histology was invasive ductal carcinoma for all patients. All patients were ER receptor positive. Two patients were HER2 positive. Five patients were offered mastectomy. One patient refused treatment. In follow up at 36 months there were 3 recurrences. 1 patient was lost to follow up. There were 3 mortalities.

The literature search identified 72 articles. Articles were subdivided into those that discussed the surgical management of male breast cancer (n = 8), articles that discussed male breast cancer as podium presentations or posters with no full text article publication (n = 13) and finally full text publications of case experience of male breast cancer (n = 21).

Discussion: We report a series of seven cases of male breast cancer encountered over three years, evaluating patient demographics as well as treatment and outcomes. In our series patients were managed with mastectomy. New evidence is questioning the role of mastectomy against breast conserving surgery in male patients. Furthermore there is a lack of reporting infrastructure for national data capture of the benefits of surgical modalities. Literature review highlights the varied clinical experience between units that remains reported as podium presentation but not published. The establishment of an online international reporting registry would allow for efficient analysis of surgical
1. Introduction

Male breast cancer represents around 1% of all breast cancers worldwide and evidence shows that it is on the rise [1,2]. The rarity of male breast cancer makes conducting a prospective trial difficult but not impossible. Progress in this area has been made with collaborations between Europe and North America to launch the EORTC-BIG-NABGS prospective trial on male breast cancer. The pitfall of this paucity of male focused research and outcome data is a lack of tailored treatment regimes. This is as a result of several confounding factors, namely the low incidence, the lack of coordinate reporting of new cases and outcomes. The focus of recent male breast cancer research has been in understanding the importance of molecular subtyping in outcomes. Furthermore data from metastatic male breast cancer has supported the practice of utilizing female protocols to treat male patients.

Juxtaposed against the research into the hormonal and genetic interplay in male breast cancer, there is a lack of surgical outcome data for this patient group. Surgical management traditionally involves the use of a radical mastectomy to aggressively en bloc tumour resection. Despite the improvements in our understanding of the biohormonal markers of male breast cancer, little has changed or been added to the surgical armamentarium. The aim of this case series is to review our centres' 7 case experience of male breast cancer and to discuss the potential reasons behind a lack of surgical evolution in this disease. Finally we propose a solution to improve the change of this surgical change.

2. Methods

A retrospective review was conducted over a 3-year period of hospital records for patients diagnosed and treated at our centre for Male breast cancer. Patient’s notes were reviewed for demographics, histological staging, multidisciplinary team meeting outcome and treatment.

A literature review was conducted to search for all presented and published data on the surgical management of male breast cancer and comparative single centre experience. Search terms ‘Male Breast Cancer AND Experience’ or Male Breast Cancer AND Surgery’ were used. Included articles for review were those that presented case experience of male breast cancer or discussed its surgical management. Podium presentations or posters were included. Publications were tabulated and reviewed. Articles that concerned biohormonal investigation of male breast cancer, adjuvant therapy treatment were excluded from further review or non English language were excluded.

3. Results

3.1. Case series

Our unit reviewed a total of 7 cases over a three-year period (2006–2009) of which 4 were diagnosed as male breast cancer. The mean age of our population was 69 years with a range of 47–93 years. 2 patients had gynaecomastia prior to diagnosis. 5 patients (71%) presented with a lump in the subareolar region, whilst 2 patients (29%) presented with an ulcer on the areola that was clinically suspicious of skin cancer and referred to dermatology for formal biopsy and diagnosis. One patient’s breast lesion was diagnosed on immunohistochemistry as a prostate metastatic secondary. 4 patients had their lesion located on the right breast, whilst 3 patients presented on the left breast. Two patients (29%) had previous malignant disease other than breast cancer prior to presentation; one had previous bladder cancer, whilst another had a previous prostate primary. Table 1 highlights the outcomes of these patients.

The mean lesion size on histological examination was 15 mm. All histology (100%) showed invasive ductal carcinoma, of which only 1 patient had vascular invasion. All patients (100%) were ER receptor positive, whilst 2 patients (29%) were HER2 positive. Our histopathology department did not routinely test for progesterone receptor status, and this was not documented in the pathology records. One patient was CK7 negative, whilst the remainder were CK7 positive (86%). Table 2 summarizes these histological findings.

Mortality in our group was three (43%), of which 1 refused treatment. One patient was referred to another unit due to geography. 5 patients were offered simple mastectomy with sentinel lymph node biopsy. Three patients were offered axillary node clearance for positive lymph nodes of which one declined. 1 patient received no treatments (on his request) as mentioned. 1 patient received primary hormonal treatment only (medically unfit). The chemotherapy regime in our unit was 6 cycles of Cyclophosphamide, 5 Fluorouracil and Methotrexate. One patient received a cycle of epirubicin to augment his chemotherapy treatment. One patient received radiotherapy. All patients were advised of Tamoxifen tablets for 5 years, whilst the two patients with Her-2 positive histochemistry were offered Herceptin therapy.

Treatment outcomes were varied; patients were followed up for 36 months during which one patient was lost to follow-up due to desire to be referred to another unit. 3 patients had no recurrence during follow-up; two patients had local spread and one had spinal metastases. Three patients died of their disease state.

3.2. Literature review

Literature search yielded 72 results. The results were subdivided into three cohorts. The first was conference abstracts for posters or podium presentations. Thirteen abstracts were reviewed that discussed single or multi centre experience of male breast cancer (Table 3). The largest case series in this group was 13,457 patients from the US National Cancer Data Base. The smallest groups were of 16 patients. The second group was articles that discussed the surgical management or published case experience of surgical techniques for male breast cancer (Table 4). Eight articles were included in this group. The largest cohort in this group reviewed the poor compliance and outcomes of lumpectomy with adjuvant therapy and partial mastectomy in 6039 male patients. The third group reviewed full text case experience publications, of which 21 were available for review (Table 5). This reflected 1390 patients in total. The largest cohort in this group was 244 patients. The mean number of patients presented in publication was 66 patients per publication. Mean age for this group was 55.5 years. Mean 5–year overall survival was 51.44%.
This data highlights the experience of a small oncoplastic breast units experience with locally treating male cancer over 3 years. It demonstrates the low incidence of male breast cancer presenting to loco-regional centres. These results demonstrate the need for a national and international reporting mechanism in order to collate large cohorts of data in order to improve understanding and outcomes. Our study found 100% of the patients in the case series were estrogen-receptor (ER) positive; this significant correlation has also been widely documented [1,2], alongside the paucity of triple-negative male breast cancer and on average 5% reported rate of HER2-positive cancers [3]. Our study also found that 100% of the cases ER positive. This correlates with previously published case series where the rate of modified radical mastectomy remained at 96.80% in a series from 2014.

Despite the Helsinki declaration, presenters of abstracts at international meetings are not obliged to record their data into a data registry. The Helsinki declaration outlines the need for research reporting in order to facilitate transparency and outcome reporting. The online research registry is one such tool for the registration of clinical patient trials for all disciplines. The significance of small centres experience would be magnified if centres could bank their clinical experience data in a registry for further analysis. Such a platform has been trialled by Orthopaedic surgeons who used a hub and spoke system to conduct a national hip arthroplasty audit [7]. Encouraging local hospitals to collate their case outcomes in a preset excel spreadsheet, the hub centre (Oxford University) could analyse each departments data individually and compare it both to other centres and the national means. This technique has also been trialled for national audit and clinical trials in reconstructive surgery (RSTN) [8]. The success and robustness of regional data input into national databases for prospective analysis has also been demonstrated in the orthopaedic implant registry [9] and the vascular network database [10]. In both theses examples it has enabled surgical outcome data and an improvement in service delivery regionally.

The international collaboration between The EORTC [11], Breast International Group (BIG), North American Breast Cancer Groups (NABCG), Borstkanker Onderzoeksgroup Nederland, Ireland Cooperative Oncology Research Group, Schweizerisches Arbeitsgemeinschaft Klin. Krebsforschung, and Swedish Association of Breast Oncologists has already facilitated a global retrospective data
| Author                  | Year | Journal/Meeting                          | Patients | Age  | Histo                      | Hormone status | 5YS − Overall survival | Surgery | Mastectomy |
|-------------------------|------|------------------------------------------|----------|------|----------------------------|----------------|------------------------|---------|------------|
| 1. Kaushik (1)          | 2012 | Male Breast Cancer – University Hospitals of Leicester Experience | 57       | 71.5 | Invasive ductal carcinoma | 97.60% ER +    | 55.60%                 | 41      | 38         |
| 2. Sedighi (2)          | 2014 | Male Breast Cancer – University Hospitals of Leicester Experience Clinopathologic characteristics of male breast cancer: A report of 21 cases at a radiotherapy centre in hamadan, Iran | 21       | 49.2 | Invasive ductal           | 76.1% ER +    | NA                     | NA      | NA         |
| 3. Stevens (3)          | 2012 | Male Breast Cancer in a Single Centre Experience | 64       | NA   | NA                        | NA             | NA                     | NA      | NA         |
| 4. Serarslan (4)        | 2015 | Male Breast Cancer: 20 Years Experience of a Tertiary Hospital from the Middle Black Sea Region of Turkey | 16       | 59.8 | Infiltrative ductal ca    | 93.80% ER +    | 68%                    | 62%     | NA         |
| 5. Calil (5)            | 2014 | Male breast cancer: Epidemiological study in patients attended in three academic hospitals in São Paulo | 35       | 35   | Invasive ductal carcinoma | 88.50% ER +    | 78.30%                 | 96.80%  | 96.90%    |
| 6. Mueller (6)          | 2010 | Male Breast Cancer - 25 Years Single Institution Experience | 61       | 62   | NA                        | NA             | 66%                    | 41 patients MRM. | NA         |
| 7. Ghiootto (7)         | 2005 | Male breast cancer: our experience from 1990 to 2004 | 48       | 60   | 87.50%                    | 75% of ER +/PR + | NA                     | 97%     | NA         |
| 8. Walsh (8)            | 2005 | Adjuvant chemotherapy in stage II node positive male breast cancer. | 31       | 61   | NA                        | 74% ER +, 61% PR + | NA                     | 100%    | NA         |
| 9. Giordano (9)         | 2003 | Male Breast Cancer: The MD Anderson experience. | 156      | 59   | 85% ER +, 71% PR +       | NA             | NA                     | NA      | NA         |
| 10. Polo (10)           | 2001 | Long term outcome of male breast cancer. A single institution experience | 21       | 65   | 19pts infiltrative ductal ca | NA         | 36%                    | NA      | NA         |
| 11. Mohler (11)         | 1997 | Treatment and Prognosis of Male breast cancer: the Heidelberg experience | 16       | 55   | 14/16 invasive ductal ca% | 64% ER 82% PR  | NA                     | MRM in all. 9/15 | 9/15 Axillary lymphonodectomy, 1 pt bilateral MBC |
| 12. Greif (12)          | 2013 | Gender Differences in Breast Cancer: Analysis of 13,000 Male Breast Cancers From the National Cancer Data Base | 13,457   | NA   | ER 88.3%, PR 76.8        | 74%            | NA                     | 9/15 Axillary lymphonodectomy, 1 pt bilateral MBC 33% partial mastectomy |
| 13. Kwong (13)          | 2013 | The American society of Breast surgeons | 142      | 64.87| ER                        | 94.5% ER +, 84.8 PR +, 60.5 HER2 + | 73.10%     | 76.1% mastectomy |

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| Author          | Title                                                                 | Year  | Journal/Meeting        | Pts | SYS - overall | Surgery                                                                 | WLE or lumpectomy |
|-----------------|----------------------------------------------------------------------|-------|------------------------|-----|---------------|--------------------------------------------------------------------------|--------------------|
| Nguyen (1)      | Demand for breast-conserving surgery among male breast cancer patients | 2012  | The American Society of Breast Surgeons | 9   | NA            | 4 patients requested breast conserving surgery                            |                    |
| Lanitis (2)     | Breast conserving surgery with preservation of the nipple-areola complex as a feasible and safe approach in male breast cancer: a case report | 2008  | Journal of medical case reports | 1   |               | Breast conserving surgery with axillary clearance, hormone therapy and radiotherapy, chemo. |                    |
| Uematsu (3)     | Two-step approach for the operation of male breast cancer: Report of a case at high risk for surgery | 1998  | Kobe Journal of Medical Sciences | 1   |               | Simple mastectomy under LA then 1 month later a radical mastectomy for breast cancer. |                    |
| Treves (4)      | The treatment of cancer, especially inoperable cancer of the male breast by ablative surgery (orchiectomy, adrenalectomy and hypophysectomy and hormone therapy (oestrogens and corticosteroids): an analysis of 42 patients | 1959  | Cancer                 | 162 | NA            | Mastectomy, orchiectomy, adrenalectomy.                                  |                    |
| Zaenger (5)     | Mastectomy vs Breast Conservation for Early-Stage Male Breast Cancer: A Comparison of Oncologic Outcomes vs breast conservation for early stage male breast cancer: A comparison of oncologic outcomes. | 2016  | Oncology               | 1777| MRM 97.3, BCT 100% | 83% SM or MRM, 17% BCS, 46% receive PORT to complete tx. |                    |
| Lanitis (2)     | Breast conserving surgery with preservation of the nipple-areola complex as a feasible and safe approach in male breast cancer: a case report. | 2008  | Journal of Medical Case Reports | 1   |               |                                                                           |                    |
| Cloyd (6)       | Poor compliance with breast cancer treatment guidelines in men undergoing breast-conserving surgery | 2013  | Breast Cancer Research and Treatment | 6039| 66.10%        | 77.80%                                                                   |                    |
| Cloyd (7)       | Outcomes of Partial mastectomy in male breast cancer patients: analysis of SEER, 1983–2009 | 2013  | Ann Surg Oncol         | 4707 + 727 (Mastect/Lump) | 87.3% lumpectomy, 87.7% Mastectomy, overall survival 66 (lumpectomy)/% 70.1 mastectomy | 86.80% | 13.20% |
| Al-Kalla (8)    | Breast total male breast reconstruction with fat grafting.            | 2007  | Breast                 | 7   | NA            | 6 pts SNLB, 5 Axillary node clearance, 7 Lumpectomy/Wide Excision SNLB –ve, Mastectomy |                    |
| Golshan M (9)   | Breast conservation for male breast carcinoma. Breast                 | 2015  | PRS Global Open        | 1   | NA            |                                                                           |                    |

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| Author                     | Title                                                                 | Year | Journal                           | Pts | Age | Histo                               | Hormone status | SYS - overall | Surgery                  | Mastect | WLE or lumpectomy |
|----------------------------|----------------------------------------------------------------------|------|-----------------------------------|-----|-----|-------------------------------------|----------------|---------------|--------------------------|---------|------------------|
| Shah P (1)                 | Clinicopathological study of male breast carcinoma: 24 years of experience | 2009 | Ann Saudi Med. 2009 Jul–Aug; 29 (4): 288–293. | 32  | NA  |                                     |                 |               |                          |         | NA               |
| Pemmaraju N (2)            | Retrospective review of male breast cancer patients: analysis of tamoxifen-related side-effects | 2011 | Ann Oncol (2011)                  | 126 | 61  | 54.7% Stage II                      | 97%            | NA            | NA                       | NA      | NA               |
| Eldin A Elgohary S (3)     | Male Breast Cancer: Experience with 6 cases                           | 2010 | 2010; 8 (10)                      | 6   | 60  | All invasive ductal carcinomas     | 71.40%         | NA - tx failure in 1 pt at 6 months. | 5/6 Modified radical mastectomy | NA      | NA               |
| Rai B (4)                  | Breast cancer in males: A PGIMER experience                            | 2005 | J Cancer Res Ther - March 2005 - vol 1 - Issue 1 | 30  | 57.13 | Invasive ductal ca n – 28          | 40%            | 28            | 25                       | 3       | NA               |
| Soliman (5)                | A retrospective analysis of survival and prognostic factors of male breast cancer from a single centre | 2014 | BMC Cancer                        | 69  | 58  | invasive ductal                    | n – 29         | 46.60%        | All underwent modified radical mastectomy with axillary lymph node dissection | NA      | NA               |
| Ahmed (6)                  | Management and outcomes of male breast cancer in Zaria, Nigeria       | 2012 | International journal of breast cancer 2012 | 57  | 59  | Invasive ductal ca 88%             | 57 - 100%       | 22.80%        | 49                       |         | NA               |
| Yildirim (7)               | Male breast cancer: 22 year experience                                | 1998 | European Journal of Surgical Oncology 24 6 548-552 | 121 | 60  | 87.6% invasive ductal ca.          | NA             | 73%           | 121                       | 96      | 25               |
| Ngoo (8)                   | Male breast cancer: experience from a malaysian tertiary centre       | 2009 | Singore Med J 50 (5) 519           | 6   | 64.5 | 5/6 infiltrative ductal ca          | 06-Jun         | NA            | 66.7% total mastectomy   |         | NA               |
| Macci (9)                  | Clinicopathological and immunohistochemical characteristics in male breast cancer: a retrospective case series. | 2015 | Oncologist 2015 vol 20. 6 586-592 | 97  | 65  | All invasive ductal ca             | 96.7% oest/prog 92.3% | 68.10%        | NA                       | NA      | NA               |
| Gogia (10)                 | Male Breast cancer: a single institute experience                     | 2015 | Indian journal of cancer           | 76  | 59  | 96% Invasive ductal ca             | 78% ER Positive | OS rate at 3 years was 95%, 80%, 65% and 30% in Stage I, Stage II, Stage III and Stage IV respectively 43% | 52      | 50               | 2       |
| Popovic (11)               | Male Breast Cancer in the era of modern therapies: serbian since centre experience report | 2014 | The Breast Journal                | 44  | NA  |                                     |                 | 79%           | 79%                      |         | NA               |
| Eryilmaz (12)              | Male breast cancer: a retrospective study of 15 years                 | 2012 | J BUON                            | 25  | 67  | er - 60%, PR/HER2 in 40$/2%        |                 | 72% MRM (18 patients), 2 patients toilet Bilat mastectomy                  | 56% SNLB, 84% had SNLD |         |                 |
| Selcukbiricik (13) | Male Breast Cancer: 37-Year Data Study at a Single Experience Centre in Turkey | Journal of Breast Cancer | 71% MRM, 2% Simple mastectomy, 13% lumpectomy, 12% axillary dissection (BCS) |
|-------------------|-------------------------------------------------|-------------------------|------------------------------------------------------------------|
| El-Beshbeshi (14) | Male Breast Cancer: 10-Year Experience at Mansoura University Hospital in Egypt | Cancer Biol Med. 2012 | 91.8% surgery, MRM 54% |
| Sas-Korczynska (15) | The biological markers and results of treatment in male breast cancer patients. The Cracow experience. | Neoplasma 2014 | 96.8% mastectomy, 3.2% tumorectomy + Axillary lymphadenectomy |
| De Ieso(16) | Male breast cancer: A 30 year experience in South Australia | Asia Pacific Journal of Clinical Oncology 2010 | 63.5% had endocrine therapy, 85% 88.90%, 8% Sentinel biopsy |
| Stierer (17) | Male Breast Cancer: Austrian Experience | World J Surg 1995 | ER 78%, PR 70%, 62% 147, Total Mast - 7%, MRM 40%, Radical 4% |
| Gough (18) | A 50 year experience of male breast cancer: is outcome changing | Surgical Oncology 1993 | 47% 92% Mastectomy 41% radical, 30% modified radical, 12% simple mastecy |
| Engin (19) | Cancer of the Male Breast: The Turkish Experience | Journal of Surgical Oncology 1993 | 92% invasive ductal carcinomas, 27% 81% Unilateral mastectomy |
| Simon (20) | Racial differences in cancer of the male breast - 15 year experience in the detroit metropolitan area | Breast Cancer Research & Treatment 1992 | 46% invasive ductal carcinoma, NA 223, 59.6% MRM, 17.1% Simple mastectomy, 15.7% Radical mastectomy, 7.6% partial mastectomy |

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review of male breast cancer patients. The second phase that involves a large prospective outcomes trial is underway (EORTC trial 10,085 Male BC). This kind of large scale initiative will no doubt improve our understanding of the treatment of this pathology. The EORTC collaboration has attempted to overcome the challenges with prospective trial data collection by implementing an online data input system. Although it is difficult to quantify the number of participating institutions, potentially this system encourages a broader data capture. However this collaboration has succeeded in moving the research into male breast cancer towards the field of big data. This potentially will aggregate known information from all aspects of the disease into models that allow continual improvement and amalgamation in order to improve understanding and hypothesis generation.

The discussion of the surgical management of male breast cancer has focused on either discussing novel surgical approaches or on outcome data on radical mastectomy versus breast conserving surgery (Table 4). Our literature review identified 11 publications that discussed the surgical management of male breast cancer. Two papers present case studies of new techniques for breast conserving surgery, whilst one case study reports the use of a simple mastectomy under local anaesthetic for an obese patient with a symptomatic Aortic aneurysm. One paper discussed the benefits of fat grafting for male breast reconstruction. These cases demonstrate the paradigm shift amongst surgeons to adopt breast conserving techniques equivalent to those utilised in female breast cancer patients. One article investigates men’s attitudes towards breast conserving surgery, particularly in their concerns over maintaining some ‘aesthetic’ functional breast and pectoralis shape post operatively. This is interesting as it reflects the similarities between women’s and men’s psychosocial reaction to breast removal and long term reconstruction [12].

Little has been documented about the potential need for immediate reconstruction of male breast cancer. In one case the use of fat grafting was reported as a potential reconstructive therapy to reconstruct the male pectoral profile post mastectomy. Traditionally the male mastectomy does not leave such a large tissue defect compared to female patients. This is due to the small amount of inherent breast tissue. In cases where resection has involved some part of the chest wall, flap based reconstruction can be utilised as volume replacement. More frequently patients undergo nipple reconstruction and tattooing to provide visual balance to the chest. Recent data published in 2016 shows that for early stage male breast cancer, breast conserving surgery yields comparable cause specific survival rates to modified radical mastectomy [13–17]. Such data may support a paradigm shift away from larger radical procedures, as was seen in female breast cancer over two decades ago. This data is corroborated by previous work published by Cloyd and colleagues from 6039 cases. They utilised the Surveillance, Epidemiology, and End results Program (SEER database) and highlighted a change in practice during the study period, particularly towards the latter end. They demonstrated a greater proportion of patients undergoing lumpectomy over mastectomy. Nguyen presented 9 cases of male breast cancer in whom patients demanded breast conserving surgery.

Surgical options for male breast reconstruction potentially need to be low volume and provide the anatomic profile of the male chest. The deep inferior epigastric perforator flap or the transverse abdominis muscle (TRAM) flap are also potential options, particularly in patients who may excess fat tissue around the umbilicus. Due to the rates of donor site morbidity and abdominal herniation with the TRAM, the DIEP may be a more favoured option. However such flaps may be preferred for reconstruction of larger volume defects. The latissimus dorsi is also an option for reconstruction amongst female patients. It could provide a low volume local flap option for male patients, however it may compromised some degree of function in the upper extremity girdle. Techniques from chest wall reconstruction may be compromised anatomically or too aggressive for the low volume tissue deficit that remains after tumour excision.

Currently, techniques such as liposuction that are adopted for gynaecomastia are precluded as they disrupt the tissue that prevents its histopathological analysis. The peri-areolar approach with surgical removal of the remnant areola tissue remains a common technique amongst plastic surgeons for this condition. Further development of the liposuction device may allow removal of breast tissue without lysis of the cells that are required for histopathological analysis [18–20]. This approach could provide adequate clearance and optimal aesthetic results. It may also be more conservative than a formal mastectomy, however at the moment this is merely a future direction [21].

There are significant limitations to small case series. Firstly the small size precludes any meaningful statistical analysis. Secondly the disparity between data collection of case sets makes direct comparison to other centres difficult. However such weaknesses strengthen the argument for an open access free registry for recording the epidemiology and surgical outcomes of such a patient group to facilitate larger scale analysis.

5. Conclusions

This case series and literature review has highlighted the low incidence of male breast cancer and the inherent difficulties in investigating it as a disease state. Our literature review draws attention to the number of podium presentations that focus on single centre experience of male breast cancer. Such presentations are not obligated to rec. There is currently no platform for such clinical data to record their findings in international data registries that would improve understanding. Despite the efforts of the EORTC – BIG – NABSG collaboration in collecting prospective data, an open access clinical case registry would enable the pooling of case experience from smaller centres for review.

Lastly it would ultimately allow a greater understanding of the surgical options employed by different centres and their overall success rates. It would enable, for the first time, a specific set of guidelines for the surgical management of male breast cancer and its reconstruction.

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