MAJOR MAMMARY DUCT EXCISION IN MAMMARY DUCT ECTASIA IS A SKILL AND AN ART FOR SAFE, EFFECTIVE AND COSMETIC RESULTS

Thesis

Submitted for Partial Fulfillment of M.D.
Degree in **General Surgery**

By

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Introduction

- Duct ectasia is a distinctive lesion characterized by dilatationof major ducts, generally in the subareolar region, associated with various degrees of inflammatory reaction around the ducts and progressive fibrosis. The term " Duct ectasia" was proposed by haagensen and remains the most widely used term for the lesion by those who distinguish between duct ectasia and cystic charges " Dabbs, 1993"

- Duct ectasia constitutes 5.5 % of all breast diseases that can be treated by surgery " Thomas et al., 1982".

- Excision of the major duct system of the breast for symptoms owing to mammary duct may be curative. Good results were obtained when the indications for surgery were nipple retraction discharge or subareolar mass " Thomas et al.,1982".

- Several surgical techniques had been carried out for the treatment of duct ectasia of the breast. This is because the surgical treatment is the only curative way for this disease "Hartly et al., 1991 and Dixon and Thompson, 1991 ".

- The classical Hadfield's operation for duct ectasia results in nipple naesthesia in most women and nipple L areola necrosis in some patients "Hadfield, 1989".

- Serivastava had modified the technique for major duct excision. The incision is given over only one third of areola circumference and no areolar flap is raised "Serivastava et al., 1995".

A new technique also offers a safer alternative to the classical Hadfield and Serivastava modification of Hadfield's operations. Three small incisions, 1/2 to 1 cm length, circumareolar at 3-7 and 11 o'clock sites are used, from which dissection and excision of the major duct system and peripheral ducts together with theliopexy are carried out " Anous, 1996".

Aim of the work:

The main target for this study is to have a comparative research work to assess the different surgical approaches treating the mammary duct ectasia.

We will compare the classical operative technique. Each surgical operation will be evaluated for its incision, technique and achievement of the expected goal all together with its drawbacks in the postoperative period.

Patient and methods:

Sixty patients with the clinical diagnosis of duct ectasia will be included in this prospective randomized non controlled study.

1. **Group No 1;** composed of 30 patients, in whom they will be treated with Seivastava modification of Hadfield technique for major duct excision, followed by internal theliopexy.
2. **Group No 2;** composed of 30 patients, in whom they will be treated surgically by the new technique of major duct excision followed by external theliopexy.

The patients will be assessed for the intra-operative complication as regards hemorrhage and the duration of the anesthesia and post-operative complications as regads wound infection, seroma, wound dehiscence, necrosis of the areola, nipple deviation or retraction and loss of sensation of the nipple and areola.

The content of this study will include:

- ✓ Review of literature.
- ✓ Patients and methods.
- ✓ Results.
- ✓ Discussion.
- ✓ Conclusion.
- ✓ Summary.
- ✓ References.
- ✓ Arabic summary.

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استئصال القنوات اللبنية الرئيسية في حالات تمدد القنوات اللبنية الرئيسية هي فن وممارة للحصول علي نتائج إيجابية و آمنة و جمالية.

رســـالــة

توطئة للحصول علي درجة الدكتوراه في الجراحة العامة

مقدمة من

طبيب/ علي أحمد محمد يونس

بكالوريوس الطب والجراحة

ماجستير الجراحة العامة

تحت أشراف

الأستاذ الدكتور/ فطين عبد المنعم عانوس

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كليه الطب- جامعة عين شمس

الأستاذ الدكتور / إيمان كامل أبو الفتوح

أستاذ الباثولوجيا الأكلينيكيه

كليه الطب – جامعة عين شمس

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الدكتور /أيمن علي رضا

مدرس الجراحة العامة

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المقـــــدمـــــة

- مرض تمدد القنوات اللبنية يتميز باتساع القنوات اللبنية الرئيسية مع وجود درجات مختلفه من الإلتهاب و التليف حول القنوات, وكان " هاجنسن" أول من اقترح هذه التسمية بين تمدد القنوات اللبنية و التغيرات الحويصلة.
- يشكل مرض تمدد القنوات اللبنية ٥,٥ % من أمراض الثدي التي تعالج بالجراحة
- استئصال القنوات اللبنية الرئيسية نتيجة للأعراض الناتجة من تمدد القنوات اللبنية ربما تكون علاج نهائي. النتائج الجيده يمكن الحصول عليها عندما تكون دواعي الجراحة هي تقلص في حلمة الثدي أو إفرازات من حلمة الثدي أو وجود تورم تحت حلمة الثدي .
- توجد طرق جراحية عديدة لعلاج تمدد القنوات اللبنية, و ذلك لأن العلاج الجراحي هو الطريقه الوحيده للعلاج من هذا المرض.
- العملية التقليدية (لهادفيلد) لتمدد القنوات اللبنية تؤدي إلي فقد الإحساس في حلمة الثدي في معظم الحالات و تعفن الحلمة في بعض الحالات.
- و لقد عدّل سيرفاستافا في العملية حيث جعل الجرح حوالي ٣/١ دائرة حلمة الثدي و عدم رفع الجلد في دائرة حلمة الثدي.
- هناك طريقة جديدة آمنة بالمقارنة بطريقة هاديفيلد و سريفاستافا حيث يتم عمل ٣ جروح صغيره من ١,٥ سم في الطول عند الساعة ١١,٧,٣ في دائرة حلمة الثدي حيث يتم استئصال القنوات اللبنية الرئيسية و الطرفية مع تثبيت حلمة الثدي من الداخل.

الهدف من البحث:

الهدف الرئيسي من هذه الدراسة هي المقارنة و تقيم الطرق الجراحية المختلفة لعلاج تمدد القنوات اللبنية.

سوف نقارن الطريقة التقليدية بالطريقة الجديدة من حيث الجرح و خطوات و تقنيات العملية وكذلك مزايا و عيوب كل طريقة و المضاعفات التي تلي العمليات الجراحية.

طرق البحث:

سوف تتم الدراسة عشوائياً علي ٦٠ حاله يعانون من تمدد القنوات اللبنية.

المرضي سوف تقسم عشوائياً إلي مجموعتين:

المجموعه الأولي:

مكونه من ٣٠ حاله حيث يتم علاجهم بطريقة سريفاستافا لاستئصال القنوات اللبنية الرئيسية و تثبيت داخلي لحلمة الثدي.

المجموعة الثانية:
مكونة من ٣٠ حاله حيث يتم علاجهم بالطريقة الجديدة لاستئصال القنوات اللبنية الرئيسية و تثبيت خارجي لحلمة الثدي.

و سوف يتم تقييم الحالات عن طريق :

- المضاعفات أثناء الجراحة من حيث النزيف و فترة التعرض للتخدير.
- مضاعفات ما بعد الجراحة من حيث التهاب الجرح و عدم إلتآمه و تعفن دائرة الحلمة و كذلك تقلص حلمة الثدي و فقد الإحساس بها.

سوف تحتوي الدراسه علي الآتي:

المراجعه العلميه

طرق البحث

النتائج

المناقشة

الأستنتاج

الملخص

المراجع

الملخص العربي

المراجع :

INTRODUCTION

Duct ectasia is a distinctive lesion characterized by dilatation of major ducts, generally in the subareolar region, associated with various degrees of inflammatory reaction around the ducts and progressive fibrosis. The term **{duct ectasia}** was proposed by Haagensen and remains the most widely used term for the lesion by those who distinguish between duct ectasia and cystic changes ***(Dabbs, 1993).***

Duct ectasia constituties 5,5% of all breast diseases that can be treated by surgery ***(Thomas et al., 2005).***

Excision of the major duct system of the breast for symptoms owing to mammary duct ectasia may be curative. Good results were obtained when the indications for surgery were nipple retraction, nipple discharge or subareolar mass ***(Thomas et al., 2005).***

Several surgical techniques had been carried out for the treatment of duct ectasia of the breast. This is because the surgical treatment is the only curative way for this disease ***(Hartley et al., 2005 and Dixon and Thompson, 2005).***

The classical Hadfield's operation for duct ectasia results in nipple anesthesia in most women and nipple / areola necrosis in some patients ***(Hadfield, 1989).***

Serivastava had modified the technique of major duct excision. The incision is given over only one third of areola circumference and no areolar flap is raised ***(Serivastava et al., 1995).***

A new technique also offers a safer alternative to the classical Hadfield and Serivastava modification of Hadfield's operations. Three small incisions, 1/2 to 1 cm length, circumareolar at 3-7 and 11 o'clock sites are used, from which dissection and excision of the major duct system and peripheral ducts together with theliopexy are carried out ***(Anous, 1996).***

AIM OF THE WORK

The main target for this study is to have a comparative research work to assess the different surgical approaches treating the mammary duct ectasia.

We will compare the classical operative technique for duct dissection and excision with the new technique. Each surgical operation will be evaluated for its incision, technique and achievement of the expected goal all together with its drawbacks in the postoperative period.

ANATOMY OF THE BREAST

Embryogenesis

The ectoderm and the mesenchyme are responsible for the genesis of the male and female breast. The ectoderm is responsible for the formation of the ducts and alveoli, and the mesenchyme is responsible for the connective tissue and its vessels. In the ventral area of the body, the milk line (ridge) develops (Fig.1). Usually, it extends from the axilla to the inguinal area. However, occasionally the milk ridge extends down into the triangle of Scarpa. The pectoral part of the milk ridge produces the right and left mammary primordia. The proximal and distal part of the extrapectoral ridge disappears ***(Skandalakis, 2009).***

The breasts have the same ectodermal origin as skin glands (Fig.2) ***(Kopans, 2007).***

The ectodermal thickening of the mammary primordium grows into the dermis. This produces 16–24 solid cords of ectodermal cells growing within the underlying mesoderm (dermis). Later, these buds will become canalized and form the lactiferous ducts and alveoli. The epidermal surface of the future nipple is at first a shallow depression during the final trimester; near term it becomes everted and ready to accept the lactiferous ducts ***(Skandalakis et al., 2004).***

Very little is known about the molecular mechanisms that initiate breast formation. A small part of the ridges remains in

the pectoral area, which is responsible for the genesis of the right and left breasts as well as for the embryological mammary anomalies. The typical developmental harmony between ectoderm (epithelial ductal lining and acini) and mesenchyme (the skin and the supporting elements) occasionally goes away, producing congenital anomalies of the breast. Each mammary lobe has one lactiferous duct, which terminates at the nipple of the mammary gland. The pathway of the lobes is from the nipple to the connective and fatty tissue of the superficial fascia. Thus, the breast can be conceptualized as a grouping of large glands that originate from the epidermis ***(Howard and Gusterson, 2000).***

The breast develops in the superficial layer of fascia that lies just beneath the skin. It is not clear whether the superficial layer splits into a deep and superficial layer to form an incomplete envelope around the gland, or whether the elongating ducts invaginate the fascia, which then ends up enveloping the gland ***(Kopans, 2007).***

The chronology of breast development is presented in Table 1. The breast characteristically presents changes when still in utero as well as during the extrauterine period ***(Skandalakis, 2009).***

Russo and Russo (2004) divide these changes into two phases:

- ***Developmental phase:*** Early stages of gland morphogenesis from nipple epithelium to lobule formation.
- ***Differentiation phase:*** Differentiation of mammary epithelium.

The ridges disappear early, but a small portion remains in the pectoral region. This is responsible for the genesis of "a single pair of glands," ***(Bland and Romrell, 2006).***

Table (1): Timeline of breast development ***(Skandalakis, 2009)***.

4th–6th fetal week	Development of milk lines or mammary (ectodermal) ridges
10th fetal week	Atrophy of the proximal and distal part of the milk lines; the middle (pectoral) part is responsible for the genesis of the breast
5th fetal month	Development of the areola and 15–20 solid cords
Later	Lactiferous ducts; mammary glands develop from the milk lines
After birth	Nipple is visible
Puberty	Ducts develop acini at their ends

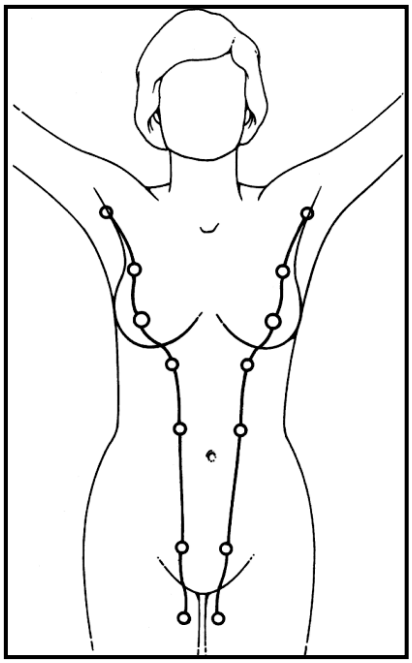

Figure (1): The milk line. Mammary glands usually develop in humans from the pectoral portion of the line. Supernumerary mammary structures may develop from other positions along the line ***(Skandalakis, 2009).***

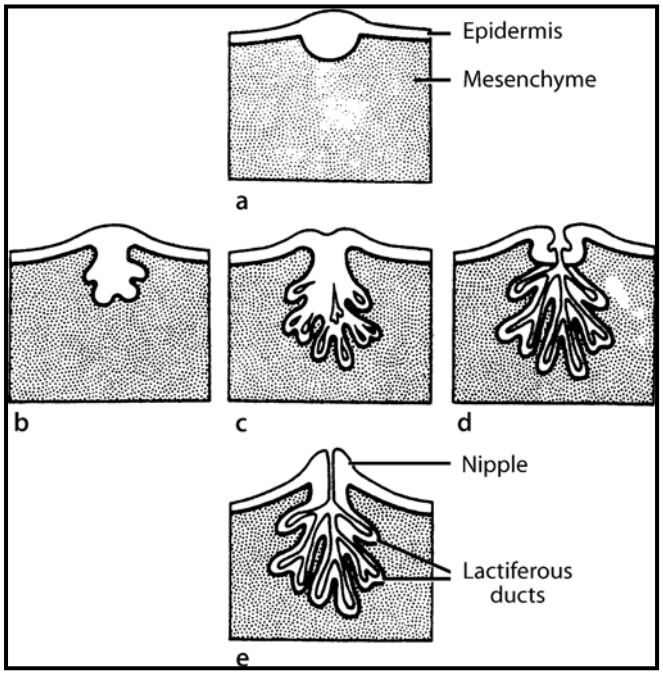

Figure (2): Development of the breast. **a–d** Stages in the formation of the duct system and potential glandular tissue from the epidermis. Connective tissue septa are derived from mesenchyme of the dermis. **e** Eversion of the nipple near birth ***(Skandalakis, 2009).***