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Review

The use of pessaries in vaginal prolapse

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Abstract

Pessaries are frequently used in cases of vaginal prolapse. Many different type of pessaries have been used in the past and are still in use today. In general it is considered to be a safe and simple form of therapy but little is known on the succes rate, the indications and the optimal management. We give an overview of the history, type, indications and complications of pessaries, and give guidelines for daily practice.

Keywords: Pessaries; Vaginal prolapse; Conservative management

Contents

1. History

The oldest known used pessaries are those described by Hippocrates who used a pomegranate soaked in vinegar as a vaginal pessary [1]. Various other fruits have also been described as pessaries. Apart from fruits, pessaries from other materials have been reported, i.e. bronze, cotton, wool and linen. Often these pessaries were connected to a T-binder which holds the pessary in its place [2]. The most common was the ball or oval form. It was Ambroise Paré in the late 16 century who was the first to develop a ring type of pessary.

The Dutch surgeon Van Deventer [3] published in 1701 his "Manuale operatien zynde een nieuw ligt voor vroed-meesters en vroedvrouwen" (Manual operations being a new light for midwives). He gives a detailed description of the pessaries used in those days. He describes four types of "rings" which were in fact more dishlike, triangular, oval or round and with a central opening (Fig. 1). They were made of wood, cork, silver or gold. The cork and wood pessaries were waxed before use to prevent rotting. He gives detailed instruction on the insertion of the pessaries and how to position the pessary in relation to the cervix.

Rubber was introduced for the use of pessaries in 1783 after discovery of the process of vulcanization by Goodyear which made it more suitable for long term use. In the 1950s, the rubber pessaries were replaced by plastics and more recently by silicone ones.

Around 1900, the pessary was at its heyday when over 100 types of pessaries were available. Its use declined with the introduction of asepsis and anesthesia allowing for more widespread use of surgical correction.

2. Types of pessaries

Over 200 forms of pessaries have been developed in the past of which approximately 20 types are still in use

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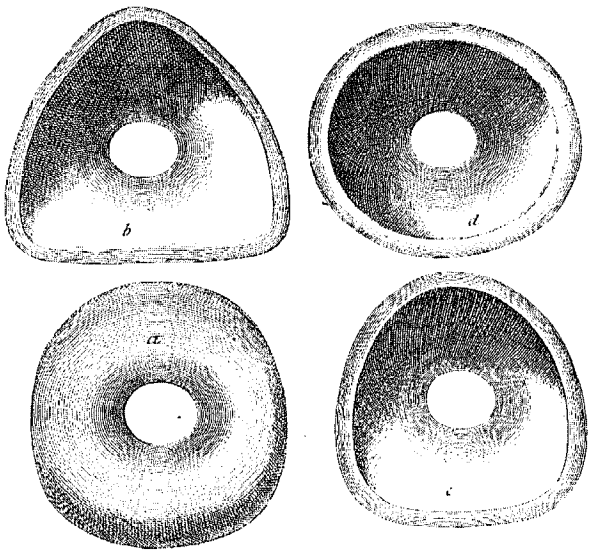

Fig. 1. The pessaries described and drawn by Van Deventer [3].

today although not all pessaries used are available in all countries.

There are two basic forms and working mechanisms for pessaries: supportive and/or space filling.

The most prominent form is the ring pessary. The ring can have various thickness and be space filling (donut) or only thin and only supportive. Hodge developed its well known oblong pessary corresponding with the shape of the vagina in 1860. Because open pessaries have the disadvantage that the uterus can protrude through the opening, the closed but perforated dish pessary became popular especially in cases of procidentia. Adjustable, inflatable pessaries have been developed for individual and self chosen adjustment depending on various circumstances. The lever pessaries (Hodge, Smith–Hodge) can also be used in a reverse way to support specifically the bladder neck in cases of stress urinary incontinence. The cube pessary holds itself in place through suction of the hollow sidewalls onto the vagina. Various other modified varieties with specific functions, supporting or releasing the urethra with or without external support, have been developed but no essential other forms persisted.

Table 1 and Fig. 2 give an overview of the most common types of pessaries, their specific names, if available, and their indications [4,5]. With regard to the specific indications no fixed rules can be given. Most authors consider a rectocele less suitable for a pessary than a cystocele or a uterine descensus. However, more important than location of the dominant prolapse is the width of the genital hiatus. If this is too wide a pessary will obviously fall out except the self retaining types such as the inflatable ball and the cube pessary.

3. Indications

The major indication for a pessary is the presence of a symptomatic prolapse when surgery is not, or not yet, possible. Consequently pessaries are most often used in elderly women, usually with many comorbidities, who are not fit for surgery [5]. However, detailed data on the most prevalent age groups using pessaries are lacking. In cases of prolapse in pregnancy, when the prolapse is often temporarily until after delivery when spontaneous regression to a more normal situation can be expected, a pessary can be most welcome [6]. Pessaries can sometimes be used as a diagnostic procedure when there are vague symptoms of backache or urinary urgency. The use of a pessary prior to surgery allows the gynaecologist to determine if surgery will successfully provide relief of symptoms. It can also temporarily be used in cases of denudation of the vaginal walls due to a severe prolapse in order to improve the integrity of the vaginal tissues before surgery. There is no consensus regarding when to use a pessary or when to operate and with better results of surgery in old age the indications for a pessary seem to diminish.

Apart from pelvic floor support defects such as vaginal prolapse and urinary incontinence, pessaries have been used for the incompetent cervix [7] and correction of retroverted or incarcerated uterus [8]. These indications are not specifically discussed in this review.

Pessaries and varies other types of vaginal devices are widely used to treat stress urinary incontinence. Success rates vary between 46 and 94% [9–16]. Unfortunately most studies show a high withdrawal rate varying between 6 and 42% which limits the usefulness of these devices. Pessaries are also used in the pre-operative selection of patients with stress urinary incontinence [10,11]. The urodynamic changes observed with the pessary in place are very similar to the changes found after incontinence surgery. Therefore, a

Table 1
Overview of the various types of pessaries, their working mechanism, their names and indications

Type of pessary	Working mechanism	Name	Indication	Remarks
Ring	Supportive	–	Cystocele, mild uterine descensus	Various sizes thickness and rigidity
Donut	Supportive/spacefilling	Donut	All prolapse except major posterior defects	
Lever	Supportive	Hodge, Smith–Hodge, Riss	Cystocele mild uterine descensus	Supposed to follow the vaginal curve
Dish	Supportive	Falk, Shaatz	Best suitable for severe procidentia	
Stem	Supportive	Gellhorn	Cystocele, mild procidentia	
Cube	Spacefilling, self adhesive	Arabin	All prolapse	Daily removal necessary
Inflatable	Spacefilling	Inflatoball	All prolapse	Daily removal necessary

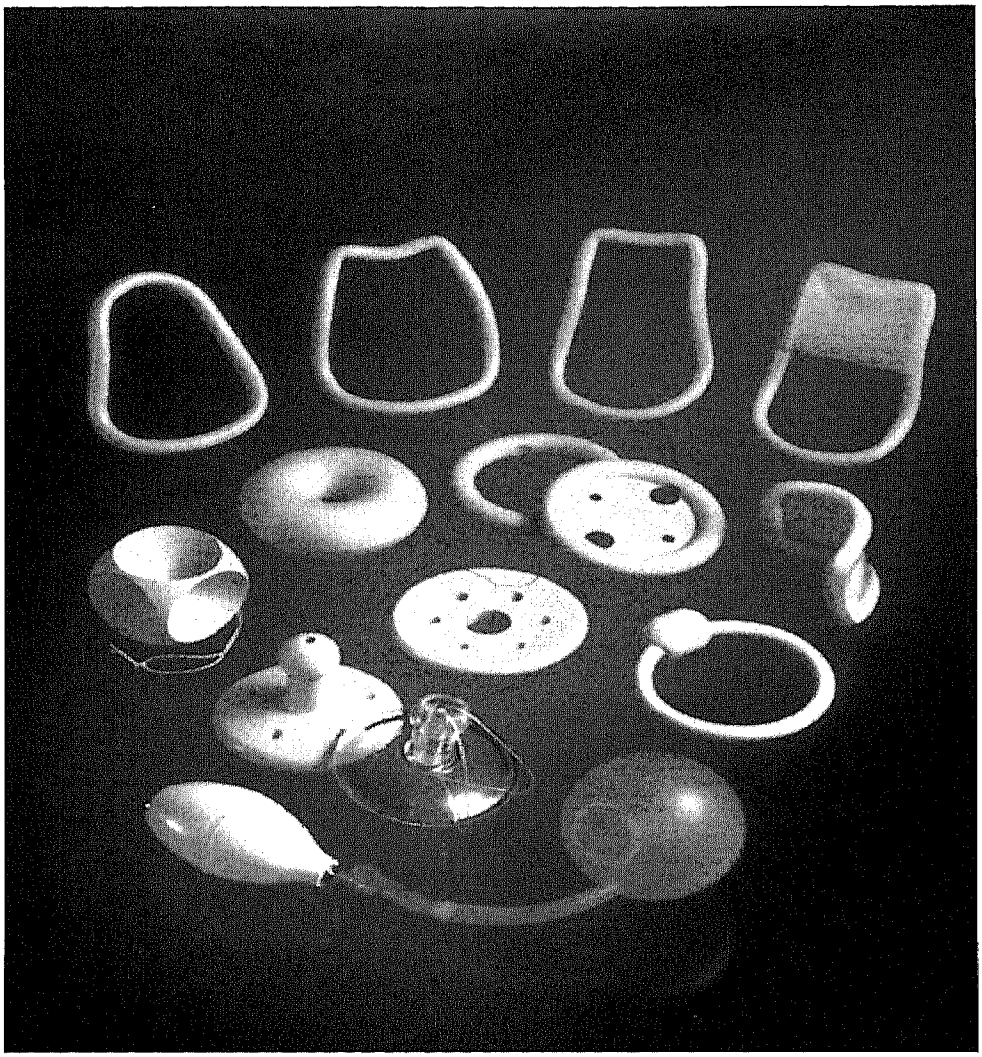

Fig. 2. Various types of pessaries. Top (from left to right): Smith, Risser, Hodge, Hodge with support. Middle: cube, donut, ring, ring with support, Gehrung. Bottom: Gellhorn (2) Shaatz, incontinence ring. Below: Inflatoball (Milex Products, Chicago, Il, USA).

pessary test can be suitable in pre-operative selection when in doubt about the usefulness of surgery.

A special role for the pessary is advocated by Nygaard [13,14] for use during sports and physical exercise when urinary incontinence is common even in young nulliparous women.

Women with severe vaginal prolapse seldom complain about urinary incontinence. Some of these women are in fact stress incontinent but this is masked by the prolapse which kinks the urethra during stress. After prolapse surgery this masked incontinence can become manifest and the patient becomes overtly incontinent unless a additional anti-incontinence procedure has been performed [17,18]. Many studies have tried to diagnose this masked incontinence by placing a pessary and thus mimicking the post-operative situation [19,20]. If the patient then becomes incontinent an additional anti-incontinence procedure is then performed at the time of the surgery to correct the prolapse. Other methods, mostly during cystometry, are also advocated to diagnose masked incontinence. From the available literature it cannot be concluded if a pessary test is suitable for this type of testing rather than reducing the prolapse with another technique such as a Sims speculum.

Pessaries have been described in cases of vaginal prolapse in neonates where it is usually diagnosed in combination with spina bifida [20].

4. Complications of pessaries

The most common complication of pessary use is irritation of the, often hypo-estrogenic, vaginal mucosa with discharge, odour, ulcerations and bleeding. Table 2 gives an overview of the most relevant complications. Most of the serious complications are anecdotal such as perforation of the bowel or bladder [21], cervical entrapment [22], Small bowel prolapse [23] and bowel and ureteral obstruction [24–26]. An incarcerated pessary can be difficult to manage.

Table 2
Possible complications of pessary use

Erosive
Vaginal irritation
Vaginal decubitus
Perforation (bladder, bowel)
Incarceration
Infectious
Bacterial vaginosis
Actinomycosis
(Uro)sepsis
Obstruction
Hydronephrosis
Bowel obstruction
Cervical entrapment
Allergic
Latex allergy
Sexual
Dyspareunia (male and female)
Neoplastic
Vaginal carcinoma
Cervical carcinoma

Table 3
Steps in fitting a pessary in vaginal prolapse

Discuss the use of a pessary with the patient
Vaginal examination for staging the prolapse and gross size estimation
Lubricate tip of the pessary and introitus
Gently insert the pessary avoiding the urethra
Check for expulsion of the pessary by asking the patient to push and/or cough
If not expulsed sweep a finger between the pessary and the vaginal wall which should be easily possible
If the size of the pessary is adequate give instruction how to prevent expulsion during bowel movements
Ask patient to walk around several minutes
If no gross irritation is experienced make next appointment after 2 weeks
If capable and willing of self management give proper instructions then
Instruct the woman to return when experiencing pain, voiding difficulty or difficult defecation
Check once again after 1 month if performed correct
Then check yearly
If not capable of selfmanagement check every 3–6 months

Sometimes simple estronizing the vagina after which it can be removed is sufficient [27] but sometimes surgical removal is necessary. When an incarcerated pessary gives no complaints it usually can be left in place without danger. Bacterial vaginosis was specifically studied and found to be strongly related to pessary use [28]. The presence of actinomycosis has occasionally been reported in pessary users [29].

Vaginal and cervical carcinoma has been related to the use of a pessary [30,31] in a report by Schraub which described 96 patients. The tumours were diagnosed after an average of 18 years of pessary. They concluded that chronic inflammation is likely to be causative.

Hormone replacement therapy (HRT) is commonly used in combination with a pessary to prevent vaginal irritation and ulceration. However, Wu [32] found no positive effect with the use of HRT on the continuation rate and in another study HRT could not prevent the occurrence of bacterial vaginosis in pessary users [28]. In only one study the use of HRT in pessary users was specifically studied [33]. It was found that combined use of systemic and local use of HRT was superior to the use of either alone but unfortunately it was not compared with no use of HRT.

5. The practice of pessaries in vaginal prolapse

Fitting a pessary can be a work of art for which no hard guidelines can be given. Table 3 gives an overview of the various steps which the author uses and which are comparable to advised schedules in the literature.

Regarding the optimal size of a pessary only little scientific information is available. In one relatively small study in which only the ring pessary was evaluated sizes varied between 45 and 95 mm [34]. Eighty percent of the patients used a pessary between 65 and 80 mm.

Instructing the patient how to prevent expulsion during defecation is very helpful since many of these elder women are constipated. By teaching the patient to palpate the pessary and hold it in place during Valsalva or alternatively by squeezing her labia and thus closing the vaginal outlet is usually all that is necessary. Self management in which the patient can remove and reinsert the pessary as she wishes is preferable, but not always acceptable or possible for patients. One study specifically studied the self management of pessaries and found good acceptance with only little and minor complications [35].

Regular checks are usually recommended but the usefulness, the exact procedure and frequency are not well evaluated. Undoubtedly the regular checks have an element of "magic" in which, apart from prevention of incarceration, little usefulness can be detected. In general, 3–6 month intervals are recommended [32]. Recently, reports from a successful nurse-run pessary clinic has been published [33].

Two studies report on the use of two pessaries when a single pessary is insufficient [36,37]. By using two (ring) pessaries the principles of support and spacefilling are combined. Although these reports are anecdotal this technique can be helpful in the difficult patient.

Little is known about the prevalence of the use of pessaries as well as its specific indications and success. Table 4 gives an overview of three studies which were identified in the literature where caregivers were interviewed regarding their practices with regard to the use of pessaries [38–40]. Two studies considered (uro)gynecologists and one study general practitioners. It can be concluded that pessaries are used almost universally by all caregivers interviewed but preference about types and indications appear to vary widely.

Tabel 4
The use of pessaries in specific caregivers

Study	*n*	Type of caregivers interviewed	Response rate (%)	Percentage using pessaries (%)	Percentage using pessaries as first choice (%)	Most common type of pessaries used
Pott-Grinstein [38]	947	Gynecolosists	47	86	–	Ring, donut
Cundiff [39]	109	Gynecologists	48	98	77	Ring, donut, Gellhorn
Vierhout [40]	114	General pract icioners	92	92	29	Ring, Hodge, dish

6. Success of pessaries

Systematic evaluation of pessary use is surprisingly scarce in the light of its frequent use. In a retrospective study Sulak et al. [41] reported successful pessary use in 50%, 16 months after insertion. Those who continued had a high satisfaction rate. Complications were seldom. Wu et al. [32] analysed the continuation rate with a pessary through life table analysis; 74% of the patients who opted for a pessary were able to be fitted successfully. If it was still in use after 1 month 66% still used it after 1 year and 53% after 3 years. The severity of the vaginal prolapse did not predict successful use of the pessary. The presence of stress incontinence had a negative impact on the success of a pessary. No serious complications were seen in this series.

In Dutch general practices it was found that the majority (79%) of women using a pessary for vaginal prolapse opted for continuation of this therapy [42]. When urinary incontinence was part of the problem women more often choose for surgery.

Vd Bosch analysed the use of a pessary in 27 users in one general practice and found an overall satisfactory outcome. The average duration of these successful pessary users was 9 years. He found a very low complication rate.

In a recent study it was found that pessaries also can have a therapeutic effect. In 21% of their patients, an improvement of the prolapse was found and no women with a worsening of their prolapse was found after treatment with a pessary for 1 year [43].

7. Conclusion

Pessaries are widely used for vaginal prolapse. In general, they appear to be very safe. There is only scarce information about success rates, complication rates and management. There is hardly no information on the patient's perception and acceptance. In general it is astonishing that an, albeit simple, but apparently valuable tool has been evaluated so poorly.

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