Integrative Medicine Strategy for Chronic Psoriasis

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Abstract— Psoriasis is a chronic autoimmune disorder that causes hyperkeratosis, which is a condition that occurs when a person's skin becomes thicker than usual in certain parts of the body. This buildup of cells causes scaling on the skin's surface. Typical psoriatic scales are whitish silver that develops as thick, red patches. Inflammation and redness around the scales is common clinical presentation. Psoriasis most commonly affects skin on the elbows, knees, and scalp; however, it can appear anywhere on the body; includes the face, neck, and hands. Lack of public understanding about psoriasis and the cause of that, some people with this condition may feel isolated and unpopular. However, most people with psoriasis have an enjoyable active life.

Aims: the aims of current case report are to 1) present the Psoriasis improvement of a 55-yo-female that has been suffering from this condition for more than two years. 2) Present and discuss integrative treatment Strategies, such as natural immune modulators, vitamins, diet modification, application of topical non-steroids ointment, while gradually tapering down the already prescribed high potent steroid ointment.

Conclusion: After 12 weeks the patient achieved a PASI 75 success score and significantly improved quality of live. Integrative intervention as adjuvant treatment to conventional therapy proved to be a very promising approach.

Keywords—component; Chronic Psoriasis, Lifestyle, Dermatitis, Contact dermatitis, Atopic dermatitis; Eczema, Naturopathic, Integrative.

I. INTRODUCTION

Many attempts have been done by conventional as well as naturopathic practitioners in past to treat different conditions of Psoriasis disorder. A common inflammatory Th-17 immune mediated disease which manifests in tissues such as intestine, respiratory tracts, skin, and joints (14). Psoriasis disorder is a systemic inflammatory disorder that has comorbidities such as Crohn's, Celiac, CAD, obesity, and DM (15); most commonly appears in ages 20-30 and ages 50-60 but can be seen at any age. It is characterized by frequent episodes of recurrences and remissions (13).

Due to the complexity of this autoimmune disorder, it has been difficult to have a completely successful treatment plan. Some intervention has been more successful than the others, while some have had more side effects than the others. In this section reviews of possible intervention, that so far has been tried, is presented.

In majority of cases of conventional interventions topical treatments, applied to the skin, are usually tried first. These include vitamin D products, topical corticosteroids, tar-based preparations, dithranol, salicylic acid, and vitamin A products (3). In an extensive systematic review registered in Cochrane Database library, the authors reviewed the results of randomized trials comparing active topical (such as corticosteroids) treatments against placebo or against vitamin D analogues (used alone or in combination) in people with chronic plaque psoriasis (3). The investigators included 177 randomized controlled trials, with 34,808 participants, which including 26 trials of scalp psoriasis and 6 trials of inverse psoriasis, facial psoriasis, or both and provided evidence on 7 new active treatments.

Using twice-daily Becocalcidiol topically on the body (in 1 study, 119 participants) and for once-daily topical application Paricalcitol on the body (in 1 study, 11 participants), vitamin D equivalents were significantly more effective than placebo. On a 6-point global improvement scale, these effects translate into 0.8 and 1.9 points, respectively (3). Most Corticosteroids also performed better than placebo; potent corticosteroids had smaller benefits than very potent corticosteroids. On a 6-point improvement scale, these benefits are 1.0 and 1.8 points, respectively. Dithranol, combined treatment with vitamin D/corticosteroid, and Tazarotene all performed significantly better than placebo (3).

An observational study conducted in Italy (2) dealing with three drugs for systemic therapy. The author investigated three available drugs in Italy: methotrexate, acitretin and cyclosporin A. The results revealed that efficacy is almost identical in all of them achieving PASI 75 in about 60% of cases in 12 weeks (2). A 75% reduction in the Psoriasis Area and Severity Index score (PASI 75) is the current benchmark of primary endpoints for most clinical trials of psoriasis (2). Side effects of Methotrexate account for more than 10% of cases which include nausea and vomiting and predominantly increase of blood levels of liver enzymes. Acitretin side effects are several and mixed, however the most severe side effect is increase of liver enzymes and blood lipids, renal impairment, and teratogenicity. Side effects of Cyclosporin are mainly hypertension and renal failure. The Author concludes that Cyclosporin is the drug among these three that has the best efficacy/side effect ratio (2).

A review article evaluates the efficacy and safety of topically applied preparations of plant extracts for

psoriasis. The authors conducted searches in PubMed, Embase, the Cochrane library, two Chinese databases and article reference lists. Randomized controlled trials examining extracts of single plants were included. However, studies about preparations with combinations of plant extracts plus conventional therapies were excluded (4). Outcomes that were used in the meta-analyses were: Clinical Efficacy, Psoriasis Area and Severity Index score, and quality of life and symptom scores. The 12 included studies were those that was investigating extracts such as: Mahonia aquifolium (n = 5), Aloe vera (n = 3), Indigo naturalis (n = 2), Kukui nut oil (n = 1) and Camptotheca acuminata nut (n = 1). Those studies indicate that Indigo naturalis, Mahonia and Camptotheca have anti-inflammatory, antiproliferative actions which are relevance to psoriasis. Administrating the mentioned plant extracts have no serious adverse effects. Among those 12 studies 6 studies provided data suitable for meta-analysis of clinical efficacy, and 5 were vs. placebo. However, the clinical trials offer inadequate support for preparations containing extracts of M. aquifolium, indigo naturalis and Aloe vera for the topical treatment of plaque psoriasis based on multiple studies. The authors concluded that due to the small size of most studies and methodological weaknesses, they were not able to draw strong conclusions about the clinical efficacies. Because the extents of any effects could not be measured with precision (4)

Fry L et al. investigating whether the Psoriasis concept is an autoimmune disease and state that labeling Psoriasis as autoimmune has been based on molecular mimicry between streptococcal and keratin proteins and the existence of homologous peptides between these proteins (5).

The authors questioning the proposal that was suggested by Johnstone A et al (6) that only peripheral blood CD8, and not CD4, T lymphocytes that respond to the homologous peptides and arguing that this postulate is completely ignoring the fact that it is CD4 T-cells that are necessary to initiate psoriasis. Baker B S et al. findings suggest that first T-cells infiltrate the skin in the development of a psoriatic lesion are of the CD4 phenotype, which are activated T-cells (7). The authors also highlighting the facts that recent studies on skin bacterial microbiota have found a variety of bacteria in both normal skin and psoriatic lesions (5). Nakatsuji T et al. Investigated the skin biopsies of the microbiome in full thickness skin and they showed that there were bacteria in all layers of the skin and subcutaneous adipose tissue in which the most common phylum were Firmicutes and the most common genus was streptococcus in psoriasis as well as normal skin. (8). Jarchum I et al. demonstrated that those bacteria regulate the development of both innate and adaptive immunity (9).

Fry L et al. emphasize that the autoimmune hypothesis for psoriasis is not taking into consideration and agreeing with the recently reported genetic findings by Tsoi L C et al. that majority of mutations are in genes concerned with innate immunity, highlighting the importance of innate immunity in psoriasis.

Fry L et al. (5) propose that Psoriasis is an abnormal response to the microbiota in the skin due to genetic mutations primarily affecting the innate immunity system (IIS).

It has been recognized that there is a clinical relationship between Crohn's disease (CD) and psoriasis.

Lee F I et al. reported that patients with CD are expected to develop psoriasis than a control population and have five times more acquire psoriasis than control population. Moreover, there is a significant increase in psoriasis in first-degree relatives of patients with CD (11). Many gastroenterologists now accept that CD is due to a breakdown of immune tolerance to the microbiota (dysbiosis) of the intestine, which leads to chronic inflammation of the intestinal wall in genetically susceptible individuals (5).

Fry L et al. conclude and suggest that, the concept of psoriasis is an autoimmune disease based on molecular mimicry, is too narrow (5). They support Holmes D. (12) stating that microbiome not only effect the immune system at the local site, but it may also impact a distant site, for instance the gut microbiome. Finally, Fry L et al. hypothesize that not only microbiome determines the immune response, but also genetic factors may have role in breakdown in immune tolerance, which is believed to occur in CD, periodontitis and may happen in psoriasis as well (5).

The reasons for most of the previous studies not being able to present a meaningful evidence of success is due to the complexity of Psoriasis and only treating the symptoms but not treating the whole person. The present case study describes and illustrates an all-inclusive integrative and naturopathic treatment as promising approach.

II. METHODS/STRATEGIES:

extensive patient intake including: History of present illness (HPI), Review of systems (ROS), Family history (FH), Past medical history (PMH), Social history (SH), Physical examination (PE), and vital signs were conducted and recorded by the author at Bastyr University clinic. Chronological photos of the affected area were provided by the author, after a signed consent from by the patient. Complete lab work such as CBC, CMP, Microscopic urine analysis were ordered by the author and conducted by LabCorp laboratory in San Diego, California. The severity of itching/discomfort in scale 0-10 (10 being the worse) were recorded in each visit.

Written as well as verbal permission for publication of the case including all details is given by the patient. Psoriasis Area and Severity Index score (PASI) were calculated as follow: Each region is given a score to show how much of the region is affected by psoriasis (area) and a score to record how bad the psoriasis is (severity). The area score can range from 0 (no psoriasis) to 6 (all the skin affected). The severity score for each region is reached by adding scores for redness, thickness, and scale, each of which is graded from 0 to 4, giving a maximum of 12. An area

and severity score for each region is calculated by multiplying the area score by the severity score (maximum 6 x 12 = 72). The amount each region contributes to the final PASI is then weighted according to how much of the total body skin surface it represents. The head and neck contribute a tenth, the hands and arms two tenths, the trunk three tenths and the buttocks, thighs, and legs four tenths. The region scores are each weighted by the given amount and then added together to give the final PASI score (Reference: Dr Robert J G Chalmers MB FRCP, Consultant Dermatologist, University of Manchester July 2008). The treatment strategy that is proposed and prescribed by the author was communicated and approved by patient's primary care physician (PCP).

III. CASE DESCRIPTION:

A 55-yo-female residing in California, suffering from Psoriasis as a chief complain (CC), has been referred to Bastyr University clinic; 02/14/2020.

A. HPI:

Onset: Psoriasis started gradually 2 years ago. Location and spread: Left lateral malleolus, right foot first metatarsal, right antecubital fossa, and B/L palmar side of the hands, over the metacarpus, and the five phalanges. Chronologically: started at the palms of the hand, then extended to right antecubital area, Left lateral malleolus, and finally to the right first metatarsal. Characteristics /quality/severity of symptoms: red itchy patches that developed to whitish silver like thick scales. Flaky on the palms, left lateral malleolus and right foot first metatarsal. Associated symptoms: None diagnosed malabsorption and joint pain. Precipitating and aggravating factors: soaps, laundry and dish detergents, cosmetic products, and dusts. Relieving factors: avoiding the contact irritants and applying topical Clobetasol propionate (a corticosteroid of the glucocorticoid class), which was prescribed by her PCP.

Timing and frequency: continuing discomfort since the onset. Current situation: deteriorating Previous diagnosis of similar episodes: she was diagnosed with asthma that resolved at age 20. Recently is diagnosed with Psoriasis by her PCP. Previous treatments and efficacy: a topical ointment; efficient temporary from few hours up to a day. Effects on daily activities: compromising activities of daily living (ADL), must always wear cotton gloves; patient states: "I can't touch anything without wearing gloves", and "I am constantly hiding effected area in public".

B. PMH: a compounded ointment containing Salicylic acid 5g, Clobetasol 45g and Eucrin 50g; prescribed by her PCP, applied topically BID. No other medications or supplements were used. Clobetasol propionate is a corticosteroid used to treat skin conditions such as eczema, contact dermatitis, seborrheic dermatitis, and psoriasis.

C. Lab results: Fasting blood Glucose 103mg/dL. BUN, Creatinine, Bilirubin (total), Bilirubin (direct), ASR (SGOT), ALT (SGPT), Alkaline phosphatase all in normal ranges.

D. Microscopic urine analysis:

Color: Yellow; Appearance: clear; Specific gravity 1.010; pH: 6; Blood: trace; Protein, Glucose, Ketone, Bilirubin, Nitrite, Urobilinogen all negatives.

W.B.C: 4-5; R.B.C.: 3-4; E.pl. Cells: 1-2; Bacteria, Mucus, Yeasts, and Crystals are all negatives. Hematology report: W.B.C: Neutrophil#, lymphocyte#, Monocyte#, Eosinophil#, Basophil# all in normal ranges; W.B.C: Neutrophil%, lymphocyte%, Monocyte%, Eosinophil%, Basophil% all in normal ranges; R.B.C # and Hgb value in normal ranges; Hct%, MCV, MCH, MCHC, RDW%, Pit, MPV, PCT%, PDW all in normal ranges; No hematology Flags. Rheumatoid factors (RF), anti-Cyclic Citrullinated Peptide (CCP), Erythrocyte Sedimentation Rate (ESR) and C-Reactive Protein (CRP), for patient's gender and age, all in normal range.

E. ROS:

GENERAL: denies weakness, fatigue, change in weight/appetite, fever, chills, night sweats, hot/cold intolerance, increased thirst/hunger/urination, change in sleeping habits, night sweats, anemia, bleeding tendencies. SKIN: denies rashes, lumps, sores, change in moles, changes in hair/nails, easy bruising. Reports itching, dryness, on the affected area. Vascular: denies pain in legs/hips while walking, edema, coolness/discoloration of extremities, loss of hair on legs, cyanosis, ulcers/non-healing wounds on legs, varicose veins, DVTs. GI: Reports protein malabsorption; denies abdominal pain, N/V, change in appetite, food intolerance, heartburn, hematemesis, excessive belching/passing gas, constipation, diarrhea, change in stool color/consistency/size, hemorrhoids, rectal bleeding/pain; has one BM per day, normal color, and size. Repots occasionally indigested particles in stool, bloating and discomfort after meals.

F. FH:

Mother had eczema. Father was diabetic. Sister has ovarian cysts.

G. SH:

Married and lives with husband. Working as economic council from home.

Objectives:

H. Physical examination (PE):

Initial vitals: BP: 130/80; Temp: 98.2, Oral, Seated, Left arm; P: 80; SpO2: 98%; Wt.: 135 lb; Ht.: 5'3".

Initial clinical presentation on first visit: as it is illustrated in figures 1-4 on 02/14/2020. Psoriasis presentation on bilateral palms are worse sites and characterized by raised, inflamed erythematous lesion covered with flaky thick silvery white scale. On left lateral malleolus an area of 3.5 cm in diameter erythematous lesions covered with silvery white scale. Over the right first metatarsal area with inflamed erythematous lesion covered with thin silvery white scale. The inflamed erythematous lesion on right antecubital area is 2 cm in diameter with no scale. Photos from the affected area were provided by the author in each visit.

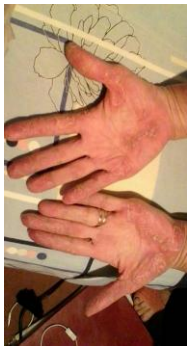

Fig.1: bilateral palms (initial visit)

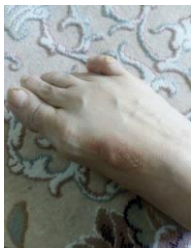

Fig.1: right first metatarsal area (initial visit)

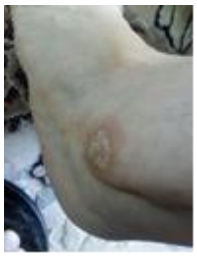

Fig.2: left lateral malleolus (initial visit)

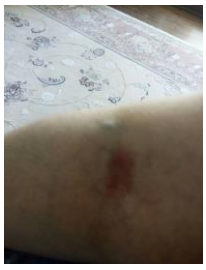

Fig.3: right antecubital (initial visit)

IV. Differential diagnosis (DDx):

Psoriasis, Irritant contact dermatitis; Allergic contact dermatitis; Atopic dermatitis; Eczema.

A. Working Dx: Psoriasis

V. Treatment plan:

A. Dermaced® Deep Therapy Cream –

Extra Care designed specifically for eczema and psoriasis. Ingredients: Colloidal Oatmeal 1% as active Ingredient. Other Ingredients: Allantoin, Aqua (Deionized Water), Beeswax, Benzyl Alcohol, Cetyl Alcohol, Chamomilla Recutita (Matricaria) Extract, Citrus Grandis (Grapefruit) Seed Extract, Cucumis Sativus (Cucumber) Fruit Extract, Echinacea Angustifolia Extract, Glyceryl Stearate, Glycyrrhiza Glabra (Licorice) Extract, Helianthus Annuus (Sunflower) Oil, Lanolin, Paraffin Wax, PEG-100 Stearate, Propylene Glycol, Prunus Amygdalus Dulcis (Sweet Almond) Oil, Simmondsia Chinensis (Jojoba) Oil, Stearic Acid, Tocopheryl Acetate (Vitamin E), and Triethanolamine.

Dermaced® Deep Therapy Cream was prescribed due to its following properties: Calm Itchy Skin Fast with the powerful active ingredient colloidal oatmeal, that has been used for many years to help soothe skin irritation and reduces skin inflammation. It softens the skin with antioxidants and triggers immune cells to start the healing process. It has 3 Premium Natural Oils for Extra Hydration: Jojoba Seed oil, Sunflower Oil, and Sweet Almond Oil. These oils contain nutrients and essential fatty acids to keep the skin nourished. It clears the Skin of Flaming Irritants, Chamomile, Grapefruit Seed, Cucumber Fruit, and Coneflower help defend against bacteria, viruses, and help soothe inflammation. It Seal Moisture in the Skin naturally with beeswax, that provides a thin waxy layer above the skin that locks in the moisture and keeps it from evaporating.

B. Directions for application of topical Dermaced® Deep Therapy Cream::

The patient was instructed to apply a thin film to affected area BID as exactly described in the following manor while gradually tapering down the Compounded ointment containing Clobetasol:

Deep Therapy Cream: day 1, 3, 5 and 7 in weeks 1-4.

Compounded ointment containing Clobetasol: day 2, 4, 6 in weeks 1-4.

Deep Therapy Cream: day 1, 2, 3, 5 and 7 in weeks 5-8.

Compounded ointment containing Clobetasol: day 4 and 6 in weeks 5-8.

Deep Therapy Cream: day 1, 2, 3, 5, 6 and 7 in weeks 9-12

Compounded ointment containing Clobetasol: day 4 only in weeks 9-12

After week 12 only Deep Therapy Cream should be applied in all weekdays.

C. Prescribed supplements:

Vitamin A (10,000 IU) QD for 6 weeks then must be tested for vitamin E level. The following for 6 months: vitamin B-6 (100mg) QD; vitamin B-12 (1000mcg IM) QW; folic acid (25mg) QD; vitamin D3 5000 IU QD; vitamin E (600 IU) QD; 600 micrograms of selenium-enriched yeast. Magnesium (500mg) QD; zinc (30mg) QD; omega-3 (500mg) QD, and thin film vitamin D cream topically PRN.

D. Recommended Nutrition:

Ingesting vegan diet; hypoallergenic/rotation diet; high fiber diet; foods rich in vitamin A, B complex, E, silica, and lecithin. Liver cleansing foods such as beets, carrots, artichokes, lemons, parsnips, dandelion greens, watercress, burdock root. Incorporating the following in diet as much as possible: omega-3 and -6 FAs reach diet, unripe dry prunes, guava skins, pearl barley, vinegar (1 Tbs in 1 glass water TID), garlic, walnuts, cucumber, beet tops, dandelions (root tea), squash, mung beans, black bass, rye, avocados, sea vegetables, whey, apple, millet, rice bran, and sprouts. Avoid: hyper allergenic food, Cyclo-oxygenase inhibitors such as NSAIDs, and aspirin. Spicy foods, heat producing foods, stimulating foods. Fatty, fried and/or extraordinarily rich foods. Allergenic food such as citrus fruits. Animal products such as pork and eggs. Dairy, butter. Sugar and sweet foods, refined foods. All kind of processed foods and foods with hydrogenated fats. Contact to any environmental irritants.

A study from 2013 showed that using both oral and topical vitamin D preparations improved psoriasis symptoms (16). Vitamin A also known as retinoids, are essential to produce healthy skin cells (17); Yellow and orange vegetables are often excellent sources of vitamin A. In a case report 100 mg vitamin B6 and 1000 mcg daily B12 and 4 to 7 mg Folic acid daily improved psoriasis symptoms (18).
People with psoriasis often have low serum levels of selenium, which is a potent antioxidant. As vitamin E and selenium are both antioxidants, they can help to protect against some of the oxidative stress that occurs with psoriasis (19). Enzymes that metabolize vitamin D require magnesium to work. Magnesium assists in the activation of vitamin D, which helps regulate calcium and phosphate homeostasis to influence the growth and maintenance of bones (20). Improvement of the clinical presentation of the patients with psoriasis due to restoration of serum zinc level to normal (21). Supplementary treatment with omega-3 fatty acids complements topical treatment in psoriasis, and reducing scalp lesion and pruritus, erythema, scaling, and infiltration of the treated areas (22).

VI. OUTCOMES:

Table 1 illustrates vitals, subjective level of pruritic irritations/quality of life scores and calculated PASI for each visit. Figures 5-10 illustrate the improving clinical presentation of the palms and right foot, in chronological order, throughout the course of the treatment. After the first 4 weeks psoriasis lesions on Left lateral malleolus, right foot first metatarsal, and right antecubital fossa completely disappeared. After 12 weeks the patient achieved PASI 75 and overall quality of live improvement 9-10/10 (10 being the best) and has no more pruritic irritations. The treatment was still on going, and the patient remains compliant to the lifestyle change and diet modification. She stayed in contact with the author for follow up.

Table 1:

Dates	Vitals	PASI score	Quality of life scores (1-10); 10 being the best
02/14/2020	BP: 130/80; Temp: 98.2 F. P: 80; SpO2: 98%	62	1/10
04/24/2020	BP: 132/80; Temp: 98.8 F. P: 82; SpO2:97.5%	44	2/10
05/08/2020	BP: 130/80; Temp: 98.5 F. P: 78; SpO2: 98%	36	4/10
06/30/2020	BP: 130/80; Temp: 97.7 F. P: 80; SpO2:97.8%	32	7/10
07/25/2020	BP: 135/80; Temp: 98.9 F. P: 85; SpO2: 97%	28	8/10
08/13/2020	BP: 130/80; Temp: 98.7 F. P: 80; SpO2: 99%	16	9-10/10
08/13/2020	Final calculated PASI	75	

Fig.4: bilateral palms (04-24-2020)

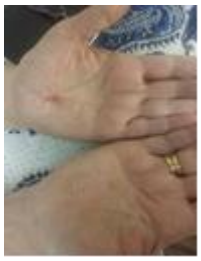

Fig.5: bilateral palms (05-08-2020)

Fig.6: bilateral palms (06-30-2020)

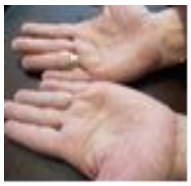

Fig.7: bilateral palms (07-25-2020)

Fig.8: bilateral palms (08-13-2020)

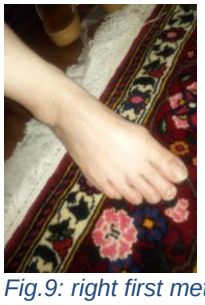

Fig.9: right first metatarsal area (08-13-2020)

VII. DISCUSSION:

As Fry L et al. hypothesized not only microbiome determines the immune response, but also genetic factors may have role in compromising the immune tolerance, which is believed to happen in CD, and most likely is happening in psoriasis as well (5). This hypothesis has been supported by what Lee F I et al. report that there is a clinical association between Crohn's disease (CD) and psoriasis.

According to Lee F I et al. patients with CD are expected to develop psoriasis more than control population and are five times more likely to acquire psoriasis comparing to control population (11). Now we know that CD is a chronic inflammatory bowel disease that affects the lining of the digestive tract which leads to dysbiosis of the intestine, and consequently to chronic inflammation of the intestinal wall which is more likely happen in genetically susceptible individuals (5).

Even though the patient of this case has not been diagnosed with CD, she reported occasionally indigested particles in stool, in addition to bloating and discomfort after meals, which indicates a likelihood of ongoing intestinal dysbiosis. The author of the present case report hypothesizes that psoriasis eruption in this patient is most likely associated with the ongoing and not treated intestinal inflammation or dysbiosis, which is supported by Fry L et al. and Lee F I et al. report. Based on this hypothesis, the primary goals of strategies used in this phase of treatment were to support gastrointestinal health as well as modifying her immune system.

The success of treatment is due to 100% compliance of the patient to the treatment plan in addition to her family support throughout the course of the treatment. After incorporating diet modifications, administrating oral vitamin A, B-6, B-12, folic acid, D3, E, magnesium, zinc, omega-3, and topical application of Deep Therapy Cream in parallel with tapering down the ointment containing Clobetasol the patient gradually reported decreasing itching and irritations, improved self-steam and quality of life. After the first 4 weeks psoriasis lesions on Left lateral malleolus, right food over first metatarsal, and right antecubital fossa completely disappeared. As it depicted in table 1 and illustrated in figure 1-10, chronological improvement of the lesions was such successful that the patient, finally, achieved PASI 75 at 08/13/2020. As the photo of 08/13/2020 illustrates there is no more raised, inflamed erythematous lesion no flaky thick silvery white scale on the palms but minor scale left with continues ongoing improvement. The author believes that there is an insisting need for a randomized placebo-controlled study in larger scale to validate and generalize the suggested integrative holistic treatment strategy.

VIII. CONCLUSION:

The aim of this case report was to present the successful improvement of a 55-yo-female that has been suffering from psoriasis for more than two years. This was achieved by utilizing natural immune

modulators such as herbs and vitamins, modifying diet, eliminating/reducing any obstacles to cure, and application of topical non-steroids ointment while gradually tapering down the already prescribed steroid ointment by her previous PCP. After 12 weeks the patient achieved a PASI of 75 success score. Patient is now enjoying initiation of social gatherings and feels empowered to be more active in her work environment, and coordinate activities in addition to participating in casual socialization. The success of treatment is due to 100% compliance of the patient to the designed treatment plan and completely supportive family throughout the treatment period.

Concluding that integrative intervention as adjuvant treatment to conventional therapy proved to be a very promising approach.

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